

A. David R. Ely

Compass Demographics, Inc.
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The subject matter on which Mr. Ely is expected to testify, the general substance of his opinions, a summary of the basis for them, and a list of documents reviewed by him is provided in the Report of David R. Ely dated July 16, 2018, which is attached hereto as Exhibit A. Because discovery is ongoing, Mr. Ely reserves the right to supplement or amend his report. Mr. Ely is expected to testify at trial as to any matter contained in his deposition testimony, if any, as well as to any matters contained in his expert report, and/or the documents reviewed in connection with the preparation of his report.

B. Kenneth R. Mayer

Kenneth Mayer Consulting, LLC
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The subject matter on which Dr. Mayer is expected to testify, the general substance of his opinions, a summary of the basis for them, and a list of documents reviewed by him is provided in the Report of Kenneth R. Mayer dated July 16, 2018, which is attached hereto as Exhibit B. Because discovery is ongoing, Dr. Mayer reserves the right to supplement or amend his report. Dr. Mayer is expected to testify at trial as to any matter contained in his deposition testimony, if any, as well as to any matters contained in his expert report, and/or the documents reviewed in connection with the preparation of his report.

C. Michael J. Collins

Brewer Attorneys & Counselors LLP
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Mr. Collins is expected to testify in person or by affidavit, as required, regarding the reasonableness of the attorneys' fees the parties seek in this action. His curriculum vitae is available at https://www.brewerattorneys.com/bios/Collins_Bio_PDF.pdf. Mr. Collins will provide an expert report and other information required by Rule 26 of the Federal Rules of Civil Procedure if and when Plaintiff is entitled to seek an award of attorneys' fees or in response to a request by Defendants for attorneys' fees. Plaintiff will request that the Court defer consideration of attorneys' fees until after trial or other resolution of this matter, and will meet and confer with Defendants regarding this request.

In forming his opinion regarding the reasonableness of the attorneys' fees sought in this action, Mr. Collins will rely on factors established by current law and the Texas Disciplinary Rules of Professional Conduct, including, but not limited to: 1) the time and labor required; 2) the novelty and the difficulty of the questions presented; 3) the skill required to perform the legal service properly; 4) the preclusion of other employment by the attorney due to acceptance of the case; 5) the customary fee in the community; 6) the contingent nature of the fee award; 7) the time limitations imposed by the circumstances of the case; 8) the amount involved and the result obtained; 9) the experience, reputation, and ability of the attorneys; 10) the desirability of the case; 11) the nature and length of the professional relationship with the client; and 12) awards in similar cases.

In addition to consideration of the above factors, Mr. Collins' opinion will be based on his knowledge of the litigation in this matter, his knowledge of fee awards in the community; and his knowledge of the billing rates of attorneys in the community, among other considerations.

Plaintiff reserves the right to supplement or revise these disclosures and/or the opinions of his experts based on the progress of the case, and to designate other expert witnesses whose testimony cannot be anticipated at this time. Plaintiff also reserves the right to call rebuttal expert witnesses whose testimony cannot be anticipated at this time.

Dated: July 16, 2018

Respectfully submitted,

/s/ William A. Brewer III
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DAVID TYSON, JR.

CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing document has been served on the following counsel via electronic filing on July 16, 2018.

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8001-205

EXHIBIT A

Analysis of Registered Voters and Illustrative Richardson ISD Trustee Districts

Expert Report of David Ely

I. **SCOPE OF ASSIGNMENT**

1. Plaintiff's attorneys have asked me to determine whether the demographics in the Richardson Independent School District ("RISD") in Texas, allow one to draw majority-minority districts in which citizens of voting age population in predominately minority communities would have an opportunity to elect representatives of their choice.
2. To determine whether minority groups in the RISD are sufficiently large and geographically compact to constitute a majority in one or more single member districts, Plaintiff's attorneys asked me to perform analyses related to the African-American and Hispanic communities in the RISD. The analyses performed were:
 - A. Identify Spanish surnamed voters from a list of current registered voters with voter-history for the RISD Board elections in 2017, as well as other elections in 2008, 2012 and 2018;
 - B. Geocode registered voters by address to match census and precinct geography;
 - C. Combine counts of voters and Spanish surnamed voters by precinct with election returns for the RISD Board and other elections;
 - D. Construct one or more illustrative single member Trustee districts with one seventh of the population of the RISD; and
 - E. Estimate citizenship status based on census data for district alternatives.
 - F. Extract socio-economic data for RISD from latest American Community Survey

II.

SUMMARY OF FINDINGS

3. Based on my analysis of the demographics of the RISD, including the specific analyses identified above, I conclude that 1) minority groups in the RISD are sufficiently large and geographically compact to constitute a majority in a single member district that includes 1/7 of the RISD population;¹ 2) in fact, it is possible to draw two such single-member districts, in which minorities comprise a majority of the citizen voting age population (“CVAP”); 3) one of the proposed single-member districts (“District A”) has a combined Hispanic and African American population of 79.4%, and a combined CVAP of 73.1%, as well as an African American CVAP of 60.3%; and 4) the second proposed district (“District B”) has a combined Hispanic and African American population of 73.8% and a combined CVAP of 50.25% respectively.²

III.

SUMMARY OF QUALIFICATIONS

4. I, David Ely, am the founder of Compass Demographics, a consulting and database management firm specializing in projects involving Census and Election Data. I have extensive experience managing redistricting projects, analyzing voting behavior, and analyzing demographics. I received a Bachelor of Science in Mechanical Engineering and Social Sciences from the California Institute of Technology in 1987.

5. I have served as an expert and testified on behalf of the United States in numerous cases involving voting rights issues, in which I performed analyses similar to those used in this report.

6. I have also served as a consultant and expert on behalf of private plaintiffs in voting-rights litigation, challenging election systems in multiple jurisdictions.

7. I have also served as a consultant and expert on behalf of defendant jurisdictions in voting rights litigation challenging election systems or districts.

8. I have also served as a consultant to construct databases, draw district lines, and prepare presentation maps and reports for many jurisdictions in conducting their normal redistricting. These include statewide congressional and legislative redistricting in California, as well as a variety of county boards, city councils, school boards, water districts, regional transit boards, and

¹ There are seven seats on the RISD Board of Trustees. Thus, each single member district would contain 1/7 of the RISD population.

² The attached maps show the two proposed single-member districts.

others following the Census in 1990, 2000, and 2010.

9. Courts have accepted my expert opinions and my expert opinions have never been excluded under *Daubert* or any other standard. Courts have relied on my expert opinions in a number of cases, finding them reliable and persuasive, including in the following cases:

Luna v. Kern County, California (2017);

Patino v. City of Pasadena (2015);

Fabela v. City of Farmers Branch (2011);

Benavidez v. Irving Independent School District (2013); and

Benavidez v. City of Irving (2008).

10. A copy of my Curriculum Vitae is attached as Appendix A.

IV. FINDINGS AND ANALYSIS

A. REGISTERED VOTER ANALYSIS

11. A Spanish surname is a commonly-used proxy for Hispanic ethnicity in determining the ethnic composition of a group of people identified by name when ethnic self-identification is not practical. I have used this type of analysis extensively to build databases to analyze voting behavior and measure potential voting strength in districts, and as a foundation for expert reports in voting-rights litigation. Additionally, I have used this type of analysis to provide important insights during the redistricting process in a number of jurisdictions.

12. The Census Bureau created a Spanish surname list and a set of governing rules for matching the list in the 1980 Census. I used the approved list and set of rules in my analysis.

13. Studies by the Census Bureau show that surname matching tends to slightly underestimate Hispanic ethnicity, except in groups with significant Filipino populations.³ The 2016 Census ACS data for the RISD indicate that there is a minimal Filipino population in the district, so Spanish surname results may be accepted as a reliable, if somewhat conservative, indication of Hispanic ethnicity.

³ Jeffrey S. Passel and David R. Word, "Constructing the List of Spanish Surnames for the 1980 Census: An Application of Bayes' Theorem," presented at the Annual Meeting of the Population Association of America, 1980.

14. Geocoding is the process of matching an address to a street reference file in order to add geographic information. In this case I used a software package called Maptitude and the street reference file that came with the program in order to obtain latitude and longitude coordinates for each address in the 2018 registered voter list. Addresses which were not matched by Maptitude were examined with Google earth pro or placed manually by examining precinct maps provided by the Dallas County Elections Department. These coordinates were used to obtain Citizen Voting Age Population (“CVAP”) by ethnicity for the area of voters’ residence. These coordinates were then used to identify the census block that contains each registered voter. Each registered voter was coded to indicate if the voter had a Spanish surname as defined by Census Bureau rules. For voters with non-Spanish surnames, the CVAP data was used to estimate the probability that the voter was Black or African American. The results of this analysis were then aggregated to the census block level in order to create a database with counts of total registered voters and Spanish surnamed registered voters and estimated Black registered voters for each census block.

15. For each of the registered voters who are recorded to have voted in each election this information was then aggregated to the precinct level in order to produce a count for each precinct in each election of total voters, Spanish surnamed voters, and estimated Black voters.

16. In order to produce a data file for election analysis I combined precinct counts of voters in the 2017 Joint Election, the 2008, 2012, and 2018 Democratic Primaries, and the 2012 General Election with precinct by precinct election results for each election downloaded from the Dallas County Elections Website (<http://www.dallascountyvotes.org>).

17. The results of this analysis were provided to Professor Kenneth Mayer for further analysis.

B.SOCIO-ECONOMIC DATA

18. I extracted a number of tables for the Richardson ISD from the 2016 five year American Community Survey summary files downloaded from the Census Bureau website (<https://www.census.gov/programs-surveys/acs/data/summary-file.html>).

19. The tables extracted were selected to allow comparison of African American, Non-Hispanic White, and Hispanic individuals or households. A listing of the tables extracted is provided in Appendix B.

20. These data were provided to Professor Kenneth Mayer for further analysis.

C.SINGLE MEMBER DISTRICTS

21. I was asked to determine if the Hispanic or African American populations in the RISD was sufficiently large and compact to form the majority of eligible voters in a single member district with 1/7 of the RISD's population (30,810 of 215,669), and to draw one or more illustrative districts for a seven member Board with a single member district configuration ("Illustrative District"). The Illustrative Districts are intended to demonstrate that a geographically compact district in which African Americans make up a majority of the eligible voters can be drawn in the RISD and, at the same time, maintain the integrity of areas of African American population concentration.

22. I used data from the 2010 Census PL94-171 redistricting data file to analyze the total population and voting age population ("VAP") by race and Hispanic Origin. I used data from the 2016 five-year American Community Survey ("ACS") to analyze the citizen voting age population ("CVAP"). The analysis also includes a breakdown of registered voters as described above.

23. The PL94-171 redistricting data file reports data by Census Block. A Special Tabulation of CVAP data by race and Hispanic Origin from the 2016 5-year ACS is available at the Census Block Group (BG) level of geography from the 2010 Census.

24. Appendix C is a document from the Census Bureau Website titled Geographic Terms and Concepts. Three sections are particularly relevant: (1) A-4, which discusses census geographic hierarchy; (2) A-10, which discusses Census Blocks and Block Groups; and (3) A-27, which is a graphical presentation of the hierarchy from A-4. Because Census Blocks and Block Groups are critical to the analysis, section A-10 from Appendix B is partially reproduced below:

Blocks (Census Blocks) are statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as selected property lines and city, township, school district, and county limits and short line-of-sight extensions of streets and roads. Generally, census blocks are small in area; for example, a block in a city bounded on all sides by streets....

Block Groups (BGs) are statistical divisions of census tracts, are generally defined to contain between 600 and 3,000 people, and are used to present data and control block numbering. A block group consists of clusters of blocks within the same census tract that have the same first digit of their four-digit census block number.... A BG usually covers a contiguous area. Each census tract contains at least one BG, and BGs are uniquely numbered within the census tract. Within the standard census geographic hierarchy, BGs never cross state, county, or census tract boundaries but may cross the boundaries of any other geographic entity.

25. In order to properly analyze the Richardson ISD and single member district alternatives, it is necessary to use Census Blocks. Although population and VAP data are available at the Census Block level, CVAP data is available only at the BG level. To calculate the African American and Hispanic share of CVAP in the various single member districts, it was necessary to create an estimate of CVAP by ethnicity at the Census Block level. For each Census Block, I calculated the block's share of VAP for each ethnic group within the corresponding BG. I then assigned to each Census Block the appropriate share of each ethnic group's CVAP within the corresponding BG.

26. The CVAP estimates for districts are calculated from the ACS survey results over a 5 year period—2012-2016.

27. I have drawn an Illustrative District plan with two districts, using easily recognizable boundaries, such as streets. I have used undivided census blocks as the basic units to form the Illustrative Districts, thus permitting the use of the 2010 Census PL94-171 redistricting data file as the population reference. The demographic characteristics of these districts are shown in Table 1 and a set of maps is provided as Appendix D.

Table 1 Illustrative District Demographics

	A		B		Richardson ISD	
Population	30645		30708		215669	
Deviation	-165	-0.5%	-102	-0.3%		
Latino	9068	29.6%	18655	60.7%	51666	24.0%
White	4510	14.7%	5736	18.7%	104539	48.5%
Black	15271	49.8%	4016	13.1%	39405	18.3%
Asian	1413	4.6%	1990	6.5%	17518	8.1%
Voting Age Pop	22421		21007		161758	
Latino	5819	26.0%	11663	55.5%	32890	20.3%
White	4077	18.2%	4879	23.2%	85898	53.1%
Black	11042	49.2%	2720	12.9%	27517	17.0%
Asian	1204	5.4%	1540	7.3%	13648	8.4%
Citizen VAP D16	20455.4		13917.3		144182.1	
Latino	2618.6	12.8%	3743.2	26.9%	16644.3	11.5%
White	4454.4	21.8%	5589.1	40.2%	85074.8	59.0%
Black	12342.3	60.3%	3248.7	23.3%	29660.2	20.6%
Asian	855.5	4.2%	984.8	7.1%	10358.9	7.2%
Registration 18	14878		10220		130039	
Latino	1378	9.3%	2242	21.9%	11648	9.0%
Black	8575.6	57.6%	2194.8	21.5%	21910.4	16.8%

V. CONCLUSIONS

28. That the data supports that a majority/minority could be established in at least two districts within the seven districts of the RISD. As demonstrated in Table 1, District A has a combined Hispanic and African American population of 79.4%, and a CVAP combined of 73.1%, as well as an African American CVAP of 60.3%; while District B has a combined Hispanic and African American population and CVAP of 73.8% and 50.25, respectively.

29. My analysis demonstrates that the African American community in the Richardson ISD is large enough to form the majority of eligible voters in a single member district with 1/7th of the population of the Richardson ISD. There is, additionally, a large enough multi-ethnic community to form a district with a Hispanic VAP majority, in which Hispanics and African Americans combine to form the majority of eligible voters.

VI. DOCUMENTS REVIEWED AND RELIED ON

30. For the purposes of this report, I reviewed and relied upon the following:

- 2010 Census TIGER geography;
- 2010 Census PL94-171 redistricting data;
- Census Bureau American Community Survey (ACS) data from 2012 through 2016;
- Dallas County Elections Department 2018 List of RISK Registered Voters with Voting History;
- Precinct geography and data from Dallas County, and Texas Legislative Council.

31. This report may be supplemented or revised in response to the discovery of additional issues and information.

32. I am being compensated at a rate of \$250 per hour by Plaintiff's attorneys for my analysis in this case. I am independent and impartial. My compensation does not depend on either my opinion or the outcome of this case.

Executed on July 16, 2018.



David Ely

Appendix A

VITA

DAVID R. ELY

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Employment:

2007 to present

David Ely is the president and founder of Compass Demographics, a consulting and database management firm specializing in projects involving census and election data, redistricting projects, demographic analysis, and analysis of voting behavior.

1986 to 2007

Director of Research for the Redistricting and Reapportionment practice of Pactech Data and Research, Pasadena, California. As Director of Research, Mr. Ely testified or consulted to counsel in a variety of litigation involving the configuration of election districts as well as providing database construction and redistricting consulting for numerous jurisdictions.

Education:

California Institute of Technology in Pasadena, CA with a B.S. in Social Sciences and Mechanical Engineering in 1987.

Redistricting Consulting

Activities include database construction, demographic and voter analysis, development of districting plans, public hearings and presentation of plans, technical assistance, and analysis of alternative redistricting plans.

2018 City of Coalinga Council District Formation

2017 San Marcos Unified School District Trustee Area Formation

2016 Upland City Council District Formation

2016 Costa Mesa City Council District Formation

2015 Garden Grove City Council District Formation

2015 Fullerton City Council District Formation

2014 Saugus Union School District Trustee Area Formation

2014 Whittier City Council District Formation

2014 Sulphur Springs School District Trustee Area Formation

2014 Lancaster Elementary School District Trustee Area Formation

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(Redistricting Consulting, cont.)

2012 Los Angeles Unified School District Redistricting

2012 Los Angeles City Council Redistricting

2012 Pasadena Unified School Board Districting

2012 Pasadena City Council Redistricting

2011 Bay Area Rapid Transit (BART) Board Redistricting

2011 California Legislative Redistricting

2011 Los Angeles County Redistricting

2008 Ceres Unified School District Redistricting

2008 Madera Unified School District Redistricting

2008 Merced Elementary School District Redistricting

2008 Merced High School District Redistricting

2005 Hanford Joint Union High School District Redistricting

2003 Oakland City Council and Oakland Unified School Board Redistricting

2002 Los Angeles City Council Redistricting

2002 Los Angeles Unified School District Board Member Redistricting

2002 Pasadena, California, City Council Redistricting

2001 California Legislative Redistricting (Senate, Assembly, and Congressional)

2001 Los Angeles County Supervisorial Redistricting

2001 Bay Area Rapid Transit Board Member Districts Redistricting

1992 Rancho Mirage, California, City Council Redistricting

1992 Three Valleys Municipal Water District Redistricting

1992 Los Angeles Unified School Board Member Redistricting

1992 Los Angeles City Council Redistricting

1992 Pasadena, California, City Council Redistricting

1991 California Congressional Redistricting

1991 California State Assembly Redistricting

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(Redistricting Consulting, cont.)

1991 Los Angeles County Board of Supervisors Redistricting

1987 City of Boston, Massachusetts Redistricting

1986 Los Angeles City Council Redistricting

1987 to 2012, California State Legislature, Redistricting Database construction

Litigation Analysis

Activities include database construction, demographic analysis, expert witness testimony, surname matching, geocoding of registered and actual voter lists, and construction of illustrative districting plans.

2000-Present Provided analysis on numerous voting rights investigations

Luna v. Kern County (2017), expert witness (California)

Patino v. City of Pasadena (2015), expert witness (Texas)

Garrett v. City of Highland (2015), expert witness (California)

Ramos v. Carrollton-Farmers Branch Independent School District (2015), expert witness (Texas)

Rodriguez v. City of Grand Prairie (2015), expert witness (Texas)

Rodriguez v. Grand Prairie Independent School District (2014), expert witness (Texas)

Navajo Nation v. San Juan County (2014), expert witness (Utah)

Solis v. City of Santa Clarita (2014), expert witness (California)

Jauregui v. City of Palmdale (2013), expert witness (California)

Gonzalez v. City of Compton (2012), expert witness (California)

Fabela v. City of Farmers Branch (2011), expert witness (Texas)

Benavidez v. Irving Independent School District (2008, 2013), expert witness (Texas)

Benavidez v. City of Irving (2008), expert witness (Texas)

Avitia v. Tulare Local Health Care District (2008), expert witness (California)

U.S. v. City of Euclid (2007), election data consultant (Ohio)

Bexar Metropolitan Water District (2007), election data consultant (Texas)

U.S. v. City of Springfield, Massachusetts (2006)

U.S. v. State of Missouri (2006), election data consultant

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(Litigation Analysis, cont.)

U.S. v. City of Philadelphia and Philadelphia City Commission (2006), Pennsylvania

State of Georgia v. Ashcroft, (2004) election data consultant

Gomez v. Hanford Joint Union High School District, (2004) California

Sanchez v. City of Modesto, (2004), California

Governor Gray Davis v. Kevin Shelley, (2003) data analysis and declaration (California)

U.S. v. Alamosa County, (2002), expert witness (Colorado)

Cano v. Davis, (2002), election data consultant, (California)

U.S. v. City of Lawrence, (2000), expert witness (Massachusetts)

U.S. v. City of Santa Paula, (2000) voting rights litigation (California)

U.S. v. Upper San Gabriel Valley Municipal Water District, (2000) voting rights litigation (California)

U.S. v. Passaic (2000) voting rights litigation (New Jersey)

U.S. v. City of Lawrence, (1999) voting rights litigation (Massachusetts)

Bonilla v. Chicago City Council (1992-1998), expert witness (Illinois)

Ruiz v. City of Santa Maria, (1992-1998), voting rights litigation (California)

Garza v. County of Los Angeles, (1988-90), Constructed databases and designed remedial plans for Los Angeles County Supervisorial Districts

Appendix B

B16005B NATIVITY BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER (BLACK OR AFRICAN AMERICAN ALONE)

B16005H NATIVITY BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER (WHITE ALONE, NOT HISPANIC OR LATINO)

B16005I NATIVITY BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER (HISPANIC OR LATINO)

B17001 POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

B17001 Universe: Population For Whom Poverty Status Is Determined

B17001B POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (BLACK OR AFRICAN AMERICAN ALONE)

B17001B Universe: Black Or African American Alone Population For Whom Poverty Status Is Determined

B17001H POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (WHITE ALONE, NOT HISPANIC OR LATINO)

B17001H Universe: White Alone, Not Hispanic Or Latino Population For Whom Poverty Status Is Determined

B17001I POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE (HISPANIC OR LATINO)

B17001I Universe: Hispanic Or Latino Population For Whom Poverty Status Is Determined

B18101B AGE BY DISABILITY STATUS (BLACK OR AFRICAN AMERICAN ALONE)

B18101B Universe: Black Or African American Alone Civilian Noninstitutionalized Population

B18101H AGE BY DISABILITY STATUS (WHITE ALONE, NOT HISPANIC OR LATINO)

B18101H Universe: White Alone, Not Hispanic Or Latino Civilian Noninstitutionalized Population

B18101I AGE BY DISABILITY STATUS (HISPANIC OR LATINO)

B18101I Universe: Hispanic Or Latino Civilian Noninstitutionalized Population

B19001 HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS)

B19001B HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (BLACK OR AFRICAN AMERICAN ALONE HOUSEHOLDER)

B19001H HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (WHITE ALONE, NOT HISPANIC OR LATINO HOUSEHOLDER)

B19001I HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (HISPANIC OR LATINO HOUSEHOLDER)

B19013 MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS)

B19013B MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (BLACK OR AFRICAN AMERICAN ALONE HOUSEHOLDER)

B19013H MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (WHITE ALONE, NOT HISPANIC OR LATINO HOUSEHOLDER)

B19013I MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (HISPANIC OR LATINO HOUSEHOLDER)

B19101 FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS)

B19101B FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (BLACK OR AFRICAN AMERICAN ALONE HOUSEHOLDER)

B19101H FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (WHITE ALONE, NOT HISPANIC OR LATINO HOUSEHOLDER)

B19101H Universe: Families With A Householder Who Is White Alone, Not Hispanic Or Latino

B19101I FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (HISPANIC OR LATINO HOUSEHOLDER)

B19113
MEDIAN FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS)

B19113B MEDIAN FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (BLACK OR AFRICAN AMERICAN ALONE HOUSEHOLDER)

B19113H MEDIAN FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (WHITE ALONE, NOT HISPANIC OR LATINO HOUSEHOLDER)

B19113I MEDIAN FAMILY INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) (HISPANIC OR LATINO HOUSEHOLDER)

B22005B RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY RACE OF HOUSEHOLDER (BLACK OR AFRICAN AMERICAN ALONE)

B22005H RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY RACE OF HOUSEHOLDER (WHITE ALONE, NOT HISPANIC OR LATINO)

B22005I
RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY RACE OF HOUSEHOLDER (HISPANIC OR LATINO)

C15002B SEX BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER (BLACK OR AFRICAN AMERICAN ALONE)

C15002H SEX BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER (WHITE ALONE, NOT HISPANIC OR LATINO)

C15002I
SEX BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER (HISPANIC OR LATINO)

C27001B HEALTH INSURANCE COVERAGE STATUS BY AGE (BLACK OR AFRICAN AMERICAN ALONE)

C27001B Universe: Black Or African American Alone Civilian Noninstitutionalized Population

C27001H HEALTH INSURANCE COVERAGE STATUS BY AGE (WHITE ALONE, NOT HISPANIC OR LATINO)

C27001H Universe: White Alone, Not Hispanic Or Latino Civilian Noninstitutionalized Population

C27001I HEALTH INSURANCE COVERAGE STATUS BY AGE (HISPANIC OR LATINO)

C27001I Universe: Hispanic Or Latino Civilian Noninstitutionalized Population

Appendix C

Appendix A. Geographic Terms and Concepts

Alaska Native Regional Corporation (ANRC) (see American Indian, Alaska Native, Native Hawaiian Area)	A-5
Alaska Native Village (ANV) (see American Indian, Alaska Native, Native Hawaiian Area)	A-5
Alaska Native Village Statistical Area (ANVSA) (see American Indian, Alaska Native, Native Hawaiian Area)	A-8
American Indian, Alaska Native, and Native Hawaiian Area	A-5
American Indian Off-Reservation Trust Land (see American Indian, Alaska Native, Native Hawaiian Area)	A-7
American Indian Reservation (see American Indian, Alaska Native, Native Hawaiian Area)	A-6
American Indian Tribal Subdivision (see American Indian, Alaska Native, Native Hawaiian Area)	A-6
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INTRODUCTION

This document provides definitions of geographic terms and concepts as well as a description of the different methods used to present information for geographic entities in U.S. Census Bureau data products. This document contains definitions for all geographic area terms and concepts recognized by the Census Bureau and that may appear in any Census Bureau product presenting demographic and housing data (geographic terms and concepts unique to the economic census and other specialized surveys and censuses are not included in this document). **The inclusion of a particular term or concept in this**

document does not imply that data for that geographic entity or attribute appear in each data product. For instance, data for tribal census tracts and tribal block groups will appear only in products providing data according to the American Indian Nation-based geographic hierarchy (see Figure A-2). As another example, because urban areas are defined on the basis of decennial census population counts, data for urban areas do not appear in initial decennial census data products. In addition, the description of both the hierarchical and inventory approaches to presenting data for geographic entities does not imply that both formats are used in each data product.

GEOGRAPHIC PRESENTATION OF DATA

In Census Bureau data products, geographic entities usually are presented in a hierarchical arrangement or as an inventory listing.

Hierarchical Presentation

A hierarchical geographic presentation shows the geographic entities in a superior/subordinate structure. This structure is derived from the legal, administrative, or areal relationships of the entities. The hierarchical structure is depicted in report tables by means of indentation. For computer-readable media, the hierarchy is shown in the descriptive name applied to a summary level, with the hierarchy in order separated by hyphens. An example of hierarchical presentation is the census geographic hierarchy consisting of census block, within block group, within census tract, within place, within county subdivision, within county, within state. Graphically, this is shown as:

```

State
  County
    County subdivision
      Place (or part)
        Census tract (or part)
          Block group (or part)
            Block
  
```

Figure A-1, which is a diagram of the geographic hierarchy, presents this information as a series of nesting relationships. For example, a line joining the lower-level entity place and the higher-level entity state means that a place cannot cross a state boundary; a line linking census tract and county means that a census tract cannot cross a county line; and so forth. There is no implied hierarchy between different line tracks; for example, census tract nests within county, but it may cross a county subdivision boundary even though county subdivision also nests within county.

Inventory Presentation

An inventory presentation of geographic entities is one in which all entities of the same type are shown in alphabetical, code, or geographic sequence, without reference to their hierarchical relationships. Generally, an inventory presentation shows totals for entities that may be split in a hierarchical presentation, such as place, census tract, or block group. An example of a series of inventory presentations is state, followed by all the counties in that state, followed by all the places in that state. Graphically, this is shown as:

```

State
  County A
  County B
  County C

  Place X
  Place Y
  Place Z
  
```

Nation-Based Hierarchies

Exceptions to the standard hierarchical presentation occur for entities that do not necessarily nest within states, most notably American Indian, Alaska Native, and Native Hawaiian areas and core based statistical areas.

American Indian, Alaska Native, and Native Hawaiian Area (AIANNHA) Hierarchy

Because federally recognized American Indian areas can cross state lines, a separate American Indian, Alaska Native, and Native Hawaiian area (AIANNHA) hierarchy exists for these areas. For instance, the following American Indian entities can cross state lines: federally recognized American Indian reservations and/or off-reservation trust lands, tribal subdivisions, tribal designated statistical areas, tribal census tracts, and tribal block groups. National summary data for American Indian reservations or statistical areas may be presented as an alphabetical listing of names followed by the state portions of each area. Also, a tribal census tract or tribal block group may be located in more than one state or county. Data for tribal census tracts and tribal block groups are presented only in Census Bureau products utilizing the AIANNHA hierarchy and are not present in products utilizing the standard census geographic hierarchy.

The diagram in Figure A–2 shows geographic relationships among geographic entities in the AIANNHA hierarchy. It does not show the geographic levels county, county subdivision, and place, among others, because AIANNHAs do not necessarily nest within them.

DEFINITIONS OF GEOGRAPHIC ENTITIES, TERMS, AND CONCEPTS

The definitions below are for geographic entities and concepts that the Census Bureau includes in its standard data products. Not all entities, terms, and concepts are shown in any one data product.

AMERICAN INDIAN, ALASKA NATIVE, AND NATIVE HAWAIIAN AREA

There are both legal and statistical American Indian, Alaska Native, and Native Hawaiian areas (AIANNHAs) for which the Census Bureau provides data. The legal entities consist of federally recognized American Indian reservations and off-reservation trust land areas, the tribal subdivisions that can divide these entities, state-recognized American Indian reservations, Alaska Native regional corporations, and Hawaiian home lands. The statistical entities are Alaska Native village statistical areas, Oklahoma tribal statistical areas, tribal designated statistical areas, and state designated tribal statistical areas. Statistical tribal subdivisions can exist within Oklahoma tribal statistical areas. In all cases, these areas are mutually exclusive in that no AIANNHA can overlap another tribal entity, except for tribal subdivisions, which by definition subdivide some American Indian entities, and Alaska Native village statistical areas, which exist within Alaska Native regional corporations. In cases where more than one tribe claims jurisdiction over an area, the Census Bureau creates a joint-use area as a separate entity to define this area of dual claims. The following provides more detail about each of the various AIANNHAs.

Legal Entities

Alaska Native regional corporations (ANRCs) were created pursuant to the Alaska Native Claims Settlement Act (ANCSA) (Pub. L. 92–203, 85 Stat. 688 [1971]; 43 U.S.C. 1602 et seq. [2000]), enacted in 1971 as a “Regional Corporation” and organized under the laws of the state of Alaska to conduct both the for-profit and non-profit affairs of Alaska Natives within a defined region of Alaska. For the Census Bureau, ANRCs are considered legal geographic entities. Twelve ANRCs cover the entire state of Alaska except for the area within the Annette Island Reserve (a federally recognized American Indian reservation under the governmental authority of the Metlakatla Indian Community). A thirteenth ANRC represents Alaska Natives who do not live in Alaska and do not identify with any of the twelve corporations. The Census Bureau does not provide data for this thirteenth ANRC because it has no defined geographic extent and thus, it does not appear in the TIGER/Line® shapefiles. The Census Bureau offers representatives of the 12 nonprofit ANRCs in Alaska the opportunity to review and update the ANRC boundaries before each decennial census.

Each ANRC is assigned a five-digit numeric Federal Information Processing Series (FIPS) code and an eight-digit National Standard (ANSI) code.

American Indian reservations—Federal (federal AIRs) are areas that have been set aside by the United States for the use of tribes, the exterior boundaries of which are more particularly defined in the final tribal treaties, agreements, executive orders, federal statutes, secretarial orders, or judicial determinations. The Bureau of Indian Affairs maintains a list of all federally recognized tribal governments and makes final determination of the inventory of federal AIRs. The Census Bureau recognizes federal reservations (and associated off-reservation trust lands) as territory over which American Indian tribes have primary governmental authority. American Indian reservations can be legally described as colonies, communities, Indian colonies, Indian communities, Indian rancherias, Indian reservations, Indian villages, pueblos, rancherias, ranches, reservations, reserves, settlements, or villages. The Census Bureau contacts representatives of American Indian tribal governments to identify the boundaries for federal reservations through its annual Boundary and Annexation Survey. Federal reservations may cross state and all other area boundaries.

Each federal AIR is assigned a four-digit census code ranging from 0001 through 4799 in alphabetical order of AIR names nationwide. This nation-based census code is the primary unique identifier for the AIR. Each federal AIR also is assigned a five-digit Federal Information Processing Series (FIPS) code and an eight-digit National Standard (ANSI) code. Because FIPS codes are assigned in alphabetical sequence within each state, the FIPS code will be different in each state for reservations that include territory in more than one state.

American Indian reservations—State (state AIRs) are reservations established by some state governments for tribes recognized by the state. A governor-appointed state liaison provides the names and boundaries for state-recognized American Indian reservations to the Census Bureau. State reservations must be defined within a single state but may cross county and other types of boundaries. Each state AIR is assigned a four-digit census code ranging from 9000 through 9499. Each state AIR also is assigned a five-digit Federal Information Processing Series (FIPS) code and an eight-digit National Standard (ANSI) code. To further identify and differentiate state-recognized American Indian areas from those that are federally recognized, the text “(state)” is appended to the AIR name.

American Indian tribal subdivisions, described as additions, administrative areas, areas, chapters, county districts, communities, districts, or segments, are legal administrative subdivisions of federally recognized American Indian reservations and off-reservation trust lands or are statistical subdivisions of Oklahoma tribal statistical areas (OTSAs). These entities are internal units of self-government or administration that serve social, cultural, and/or economic purposes for the American Indians on the reservations, off-reservation trust lands, or OTSAs. The Census Bureau obtains the boundary and name information for tribal subdivisions from tribal governments. Each American Indian tribal subdivision is assigned a three-digit census code that is alphabetically in order and unique within each American Indian area, a five-digit Federal Information Processing Series (FIPS) code assigned alphabetically within state, and an eight-digit National Standard (ANSI) code. Because FIPS codes are assigned in alphabetical sequence within each state, the FIPS code will be different in each state for tribal subdivisions that include territory in more than one state. All the summary levels that include tribal subdivisions in the presentation hierarchy will only have records for the 24 American Indian areas and two OTSAs that actually have tribal subdivisions. The list of areas and four-digit census codes is:

Code American Indian area

0335	Bois Forte Reservation, MN
0605	Cheyenne River Reservation and Off-Reservation Trust Land, SD
0855	Crow Creek Reservation, SD
0990	Eastern Cherokee Reservation, NC
1110	Flathead Reservation, MT
1150	Fort Belknap Reservation and Off-Reservation Trust Land, MT
1160	Fort Berthold Reservation, ND
1250	Fort Peck Indian Reservation and Off-Reservation Trust Land, MT
1310	Gila River Indian Reservation, AZ
1505	Hopi Reservation and Off-Reservation Trust Land, AZ
1830	Lac Vieux Desert Reservation, MI
1860	Lake Traverse Reservation and Off-Reservation Trust Land, ND-SD
2175	Menominee Reservation, WI
2430	Navajo Nation Reservation and Off-Reservation Trust Land, AZ-NM-UT
2490	Northern Cheyenne Indian Reservation and Off-Reservation Trust Land, MT
2810	Pine Ridge Reservation, SD-NE
3100	Red Lake Reservation, MN
3235	Rosebud Indian Reservation and Off-Reservation Trust Land, SD
3340	Salt River Reservation, AZ
3680	Shakopee Mdewakanton Sioux Community, MN
3935	Spirit Lake Reservation, ND
3970	Standing Rock Reservation, SD-ND
4200	Tohono O'odham Nation Reservation and Off-Reservation Trust Land, AZ
4290	Tulalip Reservation and Off-Reservation Trust Land, WA
5550	Cherokee OTSA, OK
5590	Choctaw OTSA, OK

Hawaiian home lands (HHLs) are areas held in trust for Native Hawaiians by the state of Hawaii, pursuant to the Hawaiian Homes Commission Act of 1920, as amended. The Census Bureau obtains the names and boundaries for HHLs from state officials. The names of the home lands are based on the traditional ahupua'a names of the Crown and government lands of the Kingdom of Hawaii from which the lands were designated or from the local name for an area. Being lands held in trust, HHLs are treated as equivalent to off-reservation trust land areas with the American Indian Trust Land/Hawaiian Home Land Indicator coded as "T." Each HHL is assigned a national four-digit census code ranging from 5000 through 5499 based on the alphabetical sequence of each HHL name, a five-digit Federal Information Processing Series (FIPS) code in alphabetical order within the state of Hawaii, and an eight-digit National Standard (ANSI) code.

Joint-use areas, as applied to any American Indian area by the Census Bureau, means an area that is administered jointly and/or claimed by two or more American Indian tribes. The Census Bureau designates legal joint-use areas as unique geographic entities equivalent to a reservation for the purpose of presenting statistical data. Each is assigned a national four-digit census code ranging from 4800 through 4999 based on the alphabetical sequence of each joint-use area name, a five-digit Federal Information Processing Series (FIPS) code in alphabetical order within state, and an eight-digit National Standard (ANSI) code. No joint-use areas exist in multiple states.

Off-reservation trust lands are areas for which the United States holds title in trust for the benefit of a tribe (tribal trust land) or for an individual American Indian (individual trust land). Trust lands can be alienated or encumbered only by the owner with the approval of the Secretary of the Interior or his/her authorized representative. Trust lands may be located on or off a reservation; however, the Census Bureau tabulates data only for off-reservation trust lands with the off-reservation trust lands always associated with a specific federally recognized reservation and/or tribal government. As for federally recognized reservations, the Census Bureau obtains the boundaries of off-reservation trust lands from American Indian

tribal governments through its annual Boundary and Annexation Survey. The Census Bureau recognizes and tabulates data for reservations and off-reservation trust lands because American Indian tribes have primary governmental authority over these lands. The Census Bureau does not identify fee land (or land in fee simple status) or restricted fee lands as specific geographic areas.

Off-reservation trust lands are assigned a four-digit census code, a five-digit Federal Information Processing Series (FIPS) code, and an eight-digit National Standard (ANSI) code that is the same as that for the reservation with which they are associated. Trust lands associated with tribes that do not have a reservation are assigned unique codes. The census code is assigned by tribal name within the range 0001 through 4799, interspersed alphabetically among the reservation names. Because FIPS codes are assigned in alphabetical sequence within each state, the FIPS code will be different in each state for off-reservation trust lands that include territory in more than one state. In decennial census data tabulations, the American Indian Trust Land/Hawaiian Home Land Indicator uniquely identifies off-reservation trust lands, as well as reservation or statistical area only portions, Hawaiian home lands, and records that consist of the combination of reservation and off-reservation trust land territory.

Statistical Entities

Alaska Native village statistical areas (ANVSAs) represent the more densely settled portion of Alaska Native villages (ANVs). The ANVs constitute associations, bands, clans, communities, groups, tribes, or villages recognized pursuant to the Alaska Native Claims Settlement Act of 1971 (Public Law 92-203). Because ANVs do not have boundaries that are easy to locate, the Census Bureau does not delimit ANVs. Instead, the Census Bureau presents statistical data for ANVSAs that represent the settled portion of ANVs. In addition, each ANVSA should include only an area where Alaska Natives, especially members of the defining ANV, represent a substantial proportion of the population during at least one season of the year. ANVSAs are delineated or reviewed by officials of the ANV or, if no ANV official chose to participate in the delineation process, officials of the Alaska Native Regional Corporation (ANRC) in which the ANV is located. An ANVSA may not overlap the boundary of another ANVSA or an American Indian reservation. Each ANVSA is alphabetically assigned a national four-digit census code ranging from 6000 through 7999, an alphabetically assigned state-based five-digit Federal Information Processing Series (FIPS) code, and an eight-digit National Standard (ANSI) code.

Oklahoma tribal statistical areas (OTSAs) are statistical entities identified and delineated by the Census Bureau in consultation with federally recognized American Indian tribes that had a former reservation in Oklahoma. The boundary of an OTSA will be that of the former reservation in Oklahoma, except where modified by agreements with neighboring tribes for statistical data presentation purposes. Each OTSA is alphabetically assigned a national four-digit census code ranging from 5500 through 5899, an alphabetically assigned state-based five-digit Federal Information Processing Series (FIPS) code, and an eight-digit National Standard (ANSI) code. Tribal subdivisions are allowed within OTSAs and exist for the 2010 Census in the Cherokee and Choctaw OTSAs.

Oklahoma tribal statistical area (OTSA) Joint-Use Areas, as applied to OTSAs by the Census Bureau, means an area that is administered jointly and/or claimed by two or more American Indian tribes that have a delineated OTSA. The Census Bureau designates statistical joint-use areas as unique geographic entities for the purpose of presenting statistical data. Only Oklahoma tribal statistical areas have statistical joint-use areas. Each Oklahoma tribal joint-use area is alphabetically assigned a national four-digit census code ranging from 5900 through 5999, an alphabetically assigned state-based five-digit Federal Information Processing Series (FIPS) code, and an eight-digit National Standard (ANSI) code.

State designated tribal statistical areas (SDTSAs—referred to as State Designated American Indian Statistical Areas for Census 2000) are statistical entities for state-recognized American Indian tribes that do not have a state-recognized land base (reservation). SDTSAs are identified and delineated for the Census Bureau by a state liaison identified by the governor's office in each state. SDTSAs generally encompass a compact and contiguous area that contains a concentration of people who identify with a

state-recognized American Indian tribe and in which there is structured or organized tribal activity. An SDTSA may not be located in more than one state and it may not include area within any other American Indian, Alaska Native, or Native Hawaiian area. Each SDTSA is alphabetically assigned a four-digit census code ranging from 9500 through 9998, an alphabetically assigned state-based five-digit Federal Information Processing Series (FIPS) code, and an eight-digit National Standard (ANSI) code.

Tribal designated statistical areas (TDSAs) are statistical entities identified and delineated for the Census Bureau by federally recognized American Indian tribes that do not currently have a federally recognized land base (reservation or off-reservation trust land). A TDSA generally encompasses a compact and contiguous area that contains a concentration of individuals who identify with a federally recognized American Indian tribe and in which there is structured or organized tribal activity. A TDSA may be located in more than one state (although none do for 2010), but it may not include area within any other American Indian, Alaska Native, or Native Hawaiian area. Each TDSA is alphabetically assigned a four-digit census code ranging from 8000 through 8999, an alphabetically assigned state-based five-digit Federal Information Processing Series (FIPS) code, and an eight-digit National Standard (ANSI) code.

American Indian, Alaska Native, and Native Hawaiian Area (AIANNHA) Codes—AIANNHAs are represented in Census Bureau products using a national four-character numeric census code field and a single alphabetic character American Indian trust land/Hawaiian home land indicator field. The census codes are assigned in alphabetical order in assigned ranges by AIANNHA type nationwide, except that joint-use areas appear at the end of the code range. Off-reservation trust lands are assigned the same code as the reservation with which they are associated. Trust lands associated with tribes that do not have a reservation are assigned codes based on tribal name. Federal Information Processing Series (FIPS) codes for all AIANNHAs range from 00001 through 89999, without differentiation among the many types of areas.

The type of AIANNHA can be identified either by the census code or by the FIPS class code. The range of census codes allocated to each AIANNHA and the valid FIPS class code(s) associated with each are as follows:

AIANNHA type	Census code range	Valid FIPS class code(s)*
Federal American Indian reservation (AIR)/off-reservation trust land	0001 to 4799	D1, D2, D3, D5, D8
Joint-use federal AIR	4800 to 4999	D0
Hawaiian home land	5000 to 5499	F1
Oklahoma tribal statistical area (OTSA)	5500 to 5899	D6
Joint-use OTSA	5900 to 5999	D0
Alaska Native village statistical area (ANVSA)	6000 to 7999	E1
Tribal designated statistical area (TDSA)	8000 to 8999	D6
State AIR.	9000 to 9499	D4
State designated tribal statistical area (SDTSA)	9500 to 9998	D9
AIANNHA type	American Indian, Alaska Native, Native Hawaiian area indicator	
Hawaiian home land	T	
American Indian reservation including associated off-reservation trust land	M	
American Indian reservation or statistical entity only	R	
Off-reservation trust land only	T	

* Refer to the Data Dictionary for specific value descriptions.

AREA MEASUREMENT

Area measurement data provide the size, in square units (metric and nonmetric) of geographic entities for which the Census Bureau tabulates and disseminates data. Area is calculated from the specific boundary

recorded for each entity in the Census Bureau's geographic database (see "MAF/TIGER Database"). The Census Bureau provides area measurement data for both land area and water area. The water area figures include inland, coastal, Great Lakes, and territorial sea water. Inland water consists of any lake, reservoir, pond, or similar body of water that is recorded in the Census Bureau's geographic database. It also includes any river, creek, canal, stream, or similar feature that is recorded in that database as a two-dimensional feature (rather than as a single line). The portions of the oceans and related large embayments (such as Chesapeake Bay and Puget Sound), the Gulf of Mexico, and the Caribbean Sea that belong to the United States and its territories are classified as coastal and territorial waters; the Great Lakes are treated as a separate water entity. Rivers and bays that empty into these bodies of water are treated as inland water from the point beyond which they are narrower than 1 nautical mile across. Identification of land and inland, coastal, territorial, and Great Lakes waters is for data presentation purposes only and does not necessarily reflect their legal definitions.

Land and water area measurements may disagree with the information displayed on Census Bureau maps and in the MAF/TIGER database because, for area measurement purposes, hydrologic features identified as intermittent water, glacier, or swamp are reported as land area. The water area measurement reported for some geographic entities includes water that is not included in any lower-level geographic entity. Therefore, because water is contained only in a higher-level geographic entity, summing the water measurements for all the component lower-level geographic entities will not yield the water area of that higher-level entity. This occurs, for example, where water is associated with a county but is not within the legal boundary of any county subdivision. The accuracy of any area measurement data is limited by the accuracy inherent in (1) the location and shape of the various boundary information in the MAF/TIGER database, (2) the identification, and classification of water bodies coupled with the location and shapes of the shorelines of water bodies in that database, and (3) rounding affecting the last digit in all operations that compute and/or sum the area measurements.

BLOCK

Blocks (Census Blocks) are statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as selected property lines and city, township, school district, and county limits and short line-of-sight extensions of streets and roads. Generally, census blocks are small in area; for example, a block in a city bounded on all sides by streets. Census blocks in suburban and rural areas may be large, irregular, and bounded by a variety of features, such as roads, streams, and transmission lines. In remote areas, census blocks may encompass hundreds of square miles. Census blocks cover the entire territory of the United States, Puerto Rico, and the Island Areas. Census blocks nest within all other tabulated census geographic entities and are the basis for all tabulated data.

Census Block Numbers—Census blocks are numbered uniquely with a four-digit census block number from 0000 to 9999 within census tract, which nest within state and county. The first digit of the census block number identifies the block group. Block numbers beginning with a zero (in Block Group 0) are only associated with water-only areas.

BLOCK GROUP

Block Groups (BGs) are statistical divisions of census tracts, are generally defined to contain between 600 and 3,000 people, and are used to present data and control block numbering. A block group consists of clusters of blocks within the same census tract that have the same first digit of their four-digit census block number. For example, blocks 3001, 3002, 3003, . . . , 3999 in census tract 1210.02 belong to BG 3 in that census tract. Most BGs were delineated by local participants in the Census Bureau's Participant Statistical Areas Program. The Census Bureau delineated BGs only where a local or tribal government declined to participate, and a regional organization or State Data Center was not available to participate.

A BG usually covers a contiguous area. Each census tract contains at least one BG, and BGs are uniquely numbered within the census tract. Within the standard census geographic hierarchy, BGs never cross state, county, or census tract boundaries but may cross the boundaries of any other geographic entity. Tribal

census tracts and tribal BGs are separate and unique geographic areas defined within federally recognized American Indian reservations and can cross state and county boundaries (see “Tribal Census Tract” and “Tribal Block Group”). The tribal census tracts and tribal block groups may be completely different from the census tracts and block groups defined by state and county.

Block Group Codes—BGs have a valid code range of 0 through 9. BGs beginning with a zero only contain water area and are generally in coastal and Great Lakes water and territorial seas, but also in larger inland water bodies. For the 2010 Census, a block group 0 for the water portion can be delineated in any census tract and not just those census tracts also defined to only include water area. This is a change from Census 2000, when block groups coded 0 only existed in census tracts with a code of 0. To differentiate between county-based block groups and tribal block groups, the codes for tribal block groups use an alphabetic character (see “Tribal Block Group”).

BOUNDARY CHANGES

Many of the legal and statistical entities for which the Census Bureau tabulates decennial census data have had boundary changes between Census 2000 and the 2010 Census; that is, between January 1, 2000, and January 1, 2010. Boundary changes to legal entities result from:

1. Annexations to or detachments from legally established governmental units.
2. Mergers or consolidations of two or more governmental units.
3. Establishment of new governmental units.
4. Disincorporations or disorganizations of existing governmental units.
5. Changes in treaties or executive orders and governmental action placing additional lands in trust.
6. Decisions by federal, state, and local courts.
7. Redistricting for congressional districts and state legislative districts.
8. Ancillary changes to legal or statistical areas as a result of annexations and detachments; for example, reduction of territory for a census designated place as the result of an annexation by an adjacent incorporated place.
9. Changes to correct errors or more accurately place boundaries relative to visible features.
10. Changes to statistical areas as the result of concept or criteria changes.

All legal boundaries used for the 2010 Census are those reported to the Census Bureau to be in effect as of January 1, 2010. The statistical area boundaries also reflect a January 1, 2010, date for delineation. The legal boundaries are collected through various surveys and programs: the Boundary and Annexation Survey, Redistricting Data Program, and the School District Review Program. There is a Geographic Change User Note Indicator in data files that identifies entities for which there have been changes to boundaries or data attributes (for example, legal/statistical area description or code) between the two censuses.

Statistical entity boundaries generally are reviewed by local, state, or tribal governments and can have changes to adjust boundaries to visible features to better define the geographic area each encompasses or to account for shifts and changes in the population distribution within an area. Where statistical areas have a relationship to legal area boundaries, complementary updates occur; for example, removing territory from a census designated place if annexed to an incorporated place or contracting a tribal designated statistical area if the area is added to an American Indian reservation.

The historical counts shown for states, counties, county subdivisions, places, American Indian, Alaska Native, and Native Hawaiian areas, and other areas are not updated for boundary changes and thus, reflect the population and housing units in each entity as delineated at the time of each decennial census.

CENSUS DIVISION

Census Divisions are groupings of states and the District of Columbia that are subdivisions of the four census regions (see “Census Region”). There are nine census divisions, and each is identified by a single-digit census code. Puerto Rico and the Island Areas are not part of any census region or census division. For a list of all census regions, census divisions, and their constituent states, see Figure A–3.

CENSUS REGION

Census Regions are groupings of states and the District of Columbia that subdivide the United States for the presentation of census data. There are four census regions—Northeast, Midwest, South, and West. Each of the four census regions is divided into two or more census divisions (see “Census Division”). Each census region is identified by a single-digit census code. Puerto Rico and the Island Areas are not part of any census region or census division. For a list of all census regions, census divisions, and their constituent states, see Figure A–3.

CENSUS TRACT

Census Tracts are small, relatively permanent statistical subdivisions of a county or equivalent entity that are updated by local participants prior to each decennial census as part of the Census Bureau’s Participant Statistical Areas Program. The Census Bureau delineates census tracts in situations where no local participant existed or where state, local, or tribal governments declined to participate. The primary purpose of census tracts is to provide a stable set of geographic units for the presentation of statistical data.

Census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. A census tract usually covers a contiguous area; however, the spatial size of census tracts varies widely depending on the density of settlement. Census tract boundaries are delineated with the intention of being maintained over a long time so that statistical comparisons can be made from census to census. Census tracts occasionally are split due to population growth or merged as a result of substantial population decline.

Census tract boundaries generally follow visible and identifiable features. They may follow nonvisible legal boundaries, such as minor civil division (MCD) or incorporated place boundaries in some states and situations, to allow for census-tract-to-governmental-unit relationships where the governmental boundaries tend to remain unchanged between censuses. State and county boundaries always are census tract boundaries in the standard census geographic hierarchy. Tribal census tracts are a unique geographic entity defined within federally recognized American Indian reservations and off-reservation trust lands and can cross state and county boundaries. Tribal census tracts may be completely different from the census tracts and block groups defined by state and county (see “Tribal Census Tract”).

Census Tract Codes and Numbers—Census tracts are identified by an up to four-digit integer number and may have an optional two-digit suffix; for example 1457.02 or 23. The census tract codes consist of six digits with an implied decimal between the fourth and fifth digit corresponding to the basic census tract number but with leading zeroes and trailing zeroes for census tracts without a suffix. The tract number examples above would have codes of 145702 and 002300, respectively.

Some ranges of census tract numbers in the 2010 Census are used to identify distinctive types of census tracts. The code range in the 9400s is used for those census tracts with a majority of population, housing, or land area associated with an American Indian area and matches the numbering used in Census 2000. The code range in the 9800s is new for 2010 and is used to specifically identify special land-use census tracts; that is, census tracts defined to encompass a large area with little or no residential population with special characteristics, such as large parks or employment areas. The range of census tracts in the 9900s represents census tracts delineated specifically to cover large bodies of water. This is different from Census 2000 when water-only census tracts were assigned codes of all zeroes (000000); 000000 is no longer used as a census tract code for the 2010 Census.

The Census Bureau uses suffixes to help identify census tract changes for comparison purposes. Census tract suffixes may range from .01 to .98. As part of local review of existing census tracts before each census, some census tracts may have grown enough in population size to qualify as more than one census tract. When a census tract is split, the split parts usually retain the basic number but receive different suffixes. For example, if census tract 14 is split, the new tract numbers would be 14.01 and 14.02. In a few counties, local participants request major changes to, and renumbering of, the census tracts; however, this is generally discouraged. Changes to individual census tract boundaries usually do not result in census tract numbering changes.

Tribal Census Tracts in American Indian Areas—The Census Bureau introduced the concept of tribal census tracts for the first time for Census 2000. Tribal census tracts for that census consisted of the standard county-based census tracts tabulated within American Indian areas, thus allowing for the tracts to ignore state and county boundaries for tabulation. The Census Bureau assigned the 9400 range of numbers to identify specific tribal census tracts; however, not all tribal census tracts used this numbering scheme. For the 2010 Census, tribal census tracts no longer are tied to or numbered in the same way as the county-based census tracts (see “Tribal Census Tract”).

CODES FOR GEOGRAPHIC ENTITIES

The Census Bureau and other federal agencies assign codes to geographic entities to facilitate the organization, presentation, and exchange of statistical data and other information. Geographic entity codes allow for the unambiguous identification of individual entities, generally within a specific, higher-level geographic entity (for example, county codes are assigned uniquely within each state). For geographic entities that have names (such as states, counties, places, county subdivisions, urban areas, and metropolitan and micropolitan statistical areas), codes generally are assigned alphabetically based on name.

Census Bureau data products contain several types of geographic entity codes: Federal Information Processing Series (FIPS), American National Standards Institute (ANSI), and Census Bureau codes.

Federal Information Processing Series (FIPS)—These are codes formerly known as Federal Information Processing Standards codes, until the National Institute of Standards and Technology (NIST) announced its decision in 2005 to remove geographic entity codes from its oversight. The Census Bureau continues to maintain and issue codes for geographic entities covered under FIPS oversight, albeit with a revised meaning for the FIPS acronym. Geographic entities covered under FIPS include states, counties, congressional districts, core based statistical areas, places, county subdivisions, subminor civil divisions, consolidated cities, and all types of American Indian, Alaska Native, and Native Hawaiian areas. FIPS codes are assigned alphabetically according to the name of the geographic entity and may change to maintain alphabetic sort when new entities are created or names change. FIPS codes for specific geographic entity types are usually unique within the next highest level of geographic entity with which a nesting relationship exists. For example, FIPS state, congressional district, and core based statistical area codes are unique within nation; FIPS county, place, county subdivision, and subminor civil division codes are unique within state. The codes for American Indian, Alaska Native, and Native Hawaiian areas also are unique within state; those areas in multiple states will have different codes for each state.

American National Standards Institute (ANSI)—With the removal of geographic entities from Federal Information Processing Standards oversight, the Census Bureau and other federal agencies have sought American National Standards Institute (ANSI) oversight authority for geographic entity codes. These codes are referred to as “National Standard” codes in some Census Bureau products. Geographic entities covered under ANSI include states, counties, congressional districts, core based statistical areas and related statistical areas, places, county subdivisions, consolidated cities, subminor civil divisions, and all types of American Indian, Alaska Native, and Native Hawaiian areas—Alaska Native regional corporations, Alaska Native village statistical areas, American Indian reservation and off-reservation trust lands, American

Indian tribal subdivisions, Hawaiian home lands, Oklahoma tribal statistical areas, state designated tribal statistical areas, and tribal designated statistical areas.

Relationship between FIPS and ANSI codes—Geographic entities for which NIST formerly provided Federal Information Processing Standards oversight will continue to be referred to as FIPS (Federal Information Processing Series) codes in some Census Bureau data products, despite the Census Bureau having sought ANSI oversight authority. These geographic entities include states, counties, congressional districts, and core based statistical areas and related statistical areas. The Census Bureau continues to maintain and issue codes for these entities following the same structure and without change to existing codes, except when necessary to maintain alphabetic sorting based on names of entities. The Census Bureau also continues to maintain and issue five-digit FIPS codes (formerly FIPS 55) for places, county subdivisions, consolidated cities, subminor civil divisions, Alaska Native Regional Corporations, and all types of American Indian, Alaska Native, and Native Hawaiian areas but is not seeking ANSI oversight authority for these entity codes. The U.S. Geological Survey has ANSI oversight authority for its Geographic Names Information System identifier (GNIS ID), which has been adopted as a National Standard (NS) code for states, counties, places, county subdivisions, subminor civil divisions, consolidated cities, Alaska Native Regional Corporations, and all types of American Indian, Alaska Native, and Native Hawaiian areas. The Census Bureau will include the GNIS ID for these entities in its data products, portrayed as an eight-digit character numeric code and identified as “ANSI.” NS codes (GNIS IDs) will not sort geographic entities in alphabetical order based on name or title, as is the case with FIPS codes.

Census Bureau codes—The Census Bureau assigns and issues codes for a number of geographic entities for which FIPS or ANSI codes are not available, and sometimes in addition to FIPS and ANSI codes. Geographic entities for which census codes are assigned and issued in Census Bureau data products include regions, divisions, census tracts, block groups, census blocks, urban areas, and all types of American Indian, Alaska Native, and Native Hawaiian areas. Some codes—voting district, state legislative district, and school district—use standards established by the states—or for school districts, the U.S. Department of Education.

CONGRESSIONAL DISTRICT

Congressional Districts are the 435 areas from which people are elected to the U.S. House of Representatives. After the apportionment of congressional seats among the states based on decennial census population counts, each state with multiple seats is responsible for establishing congressional districts for the purpose of electing representatives. Each congressional district is to be as equal in population to all other congressional districts in a state as practicable. For the District of Columbia, Puerto Rico, and each Island Area, a separate code is used to identify the entire areas of these state-equivalent entities as having a single nonvoting delegate.

Congressional District Codes—Congressional districts are identified by a two-character numeric Federal Information Processing Series (FIPS) code numbered uniquely within state. The District of Columbia, Puerto Rico, and the Island Areas have code 98 assigned identifying their nonvoting delegate status with respect to representation in Congress:

- 01 to 53—Congressional district codes
- 00—At large (single district for state)
- 98—Nonvoting delegate

CONSOLIDATED CITY

Consolidated City—A consolidated government is a unit of local government for which the functions of an incorporated place and its county or minor civil division (MCD) have merged. This action results in both the primary incorporated place and the county or MCD continuing to exist as legal entities, even though the county or MCD performs few or no governmental functions and has few or no elected officials. Where this occurs—and where one or more other incorporated places in the county or MCD continue to function as separate governments, even though they have been included in the consolidated government—the

primary incorporated place is referred to as a consolidated city. The Census Bureau classifies the separately incorporated places within the consolidated city as place entities and creates a separate place (balance) record for the portion of the consolidated city not within any other place.

Consolidated City (Balance) Portions refer to the areas of a consolidated city not included in another separately incorporated place. For example, Butte-Silver Bow, MT, is a consolidated city (former Butte city and Silver Bow County) that includes the separately incorporated municipality of Walkerville city. The area of the consolidated city that is not in Walkerville city is assigned to Butte-Silver Bow (balance). The name always includes the “(balance)” identifier (see “Place”).

CORE BASED STATISTICAL AREAS AND RELATED STATISTICAL AREAS

Core Based Statistical Areas (CBSAs) consist of the county or counties or equivalent entities associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties associated with the core. The general concept of a CBSA is that of a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core. The term “core based statistical area” became effective in 2003 and refers collectively to metropolitan statistical areas and micropolitan statistical areas. The U.S. Office of Management and Budget (OMB) defines CBSAs to provide a nationally consistent set of geographic entities for the United States and Puerto Rico for use in tabulating and presenting statistical data. Current CBSAs are based on application of the 2000 standards (published in the *Federal Register* of December 27, 2000) with Census 2000 data. The first set of areas defined based on the 2000 standards were announced on June 6, 2003; subsequent updates have been made to the universe of CBSAs and related statistical areas. No CBSAs are defined in the Island Areas. Statistical areas related to CBSAs include metropolitan divisions, combined statistical areas (CSAs), New England city and town areas (NECTAs), NECTA divisions, and combined NECTAs.

Combined New England City and Town Areas (Combined NECTAs) consist of two or more adjacent New England city and town areas (NECTAs) that have substantial employment interchange. The NECTAs that combine to create a combined NECTA retain separate identities within the larger combined NECTA. Because combined NECTAs represent groupings of NECTAs, they should not be ranked or compared with individual NECTAs.

Combined Statistical Areas (CSAs) consist of two or more adjacent CBSAs that have substantial employment interchange. The CBSAs that combine to create a CSA retain separate identities within the larger CSA. Because CSAs represent groupings of metropolitan and/or micropolitan statistical areas, they should not be ranked or compared with individual metropolitan and micropolitan statistical areas.

Metropolitan Divisions are smaller groupings of counties or equivalent entities defined within a metropolitan statistical area containing a single core with a population of at least 2.5 million. Not all metropolitan statistical areas with urbanized areas of this size will contain metropolitan divisions. A metropolitan division consists of one or more main/secondary counties that represent an employment center or centers, plus adjacent counties associated with the main/secondary county or counties through commuting ties. Because metropolitan divisions represent subdivisions of larger metropolitan statistical areas, it is not appropriate to rank or compare metropolitan divisions with metropolitan and micropolitan statistical areas. It would be appropriate to rank and compare metropolitan divisions.

Metropolitan Statistical Areas are CBSAs associated with at least one urbanized area that has a population of at least 50,000. The metropolitan statistical area comprises the central county or counties or equivalent entities containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county or counties as measured through commuting.

Micropolitan Statistical Areas are CBSAs associated with at least one urban cluster that has a population of at least 10,000 but less than 50,000. The micropolitan statistical area comprises the central

county or counties or equivalent entities containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county or counties as measured through commuting.

New England City and Town Areas (NECTAs) are an alternative set of geographic entities, similar in concept to the county-based CBSAs defined nationwide, that OMB defines in New England based on county subdivisions—usually cities and towns. NECTAs are defined using the same criteria as county-based CBSAs, and, similar to CBSAs, NECTAs are categorized as metropolitan or micropolitan.

New England City and Town Area (NECTA) Divisions are smaller groupings of cities and towns defined within a NECTA containing a single core with a population of at least 2.5 million. A NECTA division consists of a main city or town that represents an employment center, plus adjacent cities and towns associated with the main city or town through commuting ties. Each NECTA division must contain a total population of 100,000 or more. Because NECTA divisions represent subdivisions of larger NECTAs, it is not appropriate to rank or compare NECTA divisions with NECTAs. It would be appropriate to rank and compare NECTA divisions.

Principal Cities of a CBSA (or NECTA) include the largest incorporated place with a population of at least 10,000 in the CBSA, or if no incorporated place of at least 10,000 population is present in the CBSA, the largest incorporated place or census designated place (CDP) in the CBSA. Principal cities also include any additional incorporated place or CDP with a population of at least 250,000 or in which 100,000 or more persons work; any additional incorporated place or CDP with a population of at least 50,000 and in which the number of jobs meets or exceeds the number of employed residents; and any additional incorporated place or CDP with a population of at least 10,000 but less than 50,000 and at least one-third the population size of the largest place and in which the number of jobs meets or exceeds the number of employed residents. Note that there are some places designated as principal cities of NECTAs that are not principal cities of a CBSA.

Core Based Statistical Area Codes—Metropolitan statistical areas, micropolitan statistical areas, NECTAs, metropolitan divisions, and NECTA divisions are identified using a five-digit numeric code that is assigned alphabetically based on title and is unique within the nation. The combined statistical area and combined NECTAs are identified using a three-digit numeric code, also assigned alphabetically based on title and unique within the nation. Codes, length, and ranges are:

CBSA entity	Length	Range*
Metropolitan statistical area	Five digits	10000–49999
Micropolitan statistical area	Five digits	10000–49999
Metropolitan division	Five digits	10004–49994
New England city and town area (NECTA)	Five digits	70000–79999
NECTA division	Five digits	70004–79994
Combined statistical area	Three digits	100–599
Combined NECTA	Three digits	700–799

* Metropolitan divisions and NECTA divisions are distinguished from metropolitan and micropolitan statistical areas and NECTAs by codes that end in "4." Metropolitan and micropolitan statistical areas and NECTAs cannot end in "4."

COUNTY OR STATISTICALLY EQUIVALENT ENTITY

The primary legal divisions of most states are termed counties. In Louisiana, these divisions are known as parishes. In Alaska, which has no counties, the equivalent entities are the organized boroughs, city and boroughs, municipalities, and census areas; the latter of which are delineated cooperatively for statistical purposes by the state of Alaska and the Census Bureau. In four states (Maryland, Missouri, Nevada, and Virginia), there are one or more incorporated places that are independent of any county organization and thus constitute primary divisions of their states. These incorporated places are known as independent cities and are treated as equivalent entities for purposes of data presentation. The District of Columbia

and Guam have no primary divisions, and each area is considered an equivalent entity for purposes of data presentation. All of the counties in Connecticut and Rhode Island and nine counties in Massachusetts were dissolved as functioning governmental entities; however, the Census Bureau continues to present data for these historical entities in order to provide comparable geographic units at the county level of the geographic hierarchy for these states and represents them as nonfunctioning legal entities in data products. The Census Bureau treats the following entities as equivalents of counties for purposes of data presentation: municipios in Puerto Rico, districts and islands in American Samoa, municipalities in the Commonwealth of the Northern Mariana Islands, and islands in the U.S. Virgin Islands. Each county or statistically equivalent entity is assigned a three-character numeric Federal Information Processing Series (FIPS) code based on alphabetical sequence that is unique within state and an eight-digit National Standard feature identifier.

COUNTY SUBDIVISION

County Subdivisions are the primary divisions of counties and equivalent entities. They include census county divisions, census subareas, minor civil divisions, and unorganized territories and can be classified as either legal or statistical. Each county subdivision is assigned a five-character numeric Federal Information Processing Series (FIPS) code based on alphabetical sequence within state and an eight-digit National Standard feature identifier.

Legal Entities

Minor civil divisions (MCDs) are the primary governmental or administrative divisions of a county in many states (parishes in Louisiana) and the county equivalents in Puerto Rico and the Island Areas. MCDs in the United States, Puerto Rico, and the Island Areas represent many different kinds of legal entities with a wide variety of governmental and/or administrative functions. MCDs include areas variously designated as barrios, barrios-pueblo, boroughs, charter townships, commissioner districts, election districts, election precincts, gores, grants, locations, magisterial districts, parish governing authority districts, plantations, purchases, reservations, supervisor's districts, towns, and townships. The Census Bureau recognizes MCDs in 29 states, Puerto Rico, and the Island Areas. The District of Columbia has no primary divisions and is considered equivalent to an MCD for statistical purposes. (It is also considered a state equivalent and a county equivalent.) The 29* states in which MCDs are recognized are:

Arkansas	Michigan	Ohio
Connecticut	Minnesota	Pennsylvania
Illinois	Mississippi	Rhode Island
Indiana	Missouri	South Dakota
Iowa	Nebraska	Tennessee
Kansas	New Hampshire	Vermont
Louisiana	New Jersey	Virginia
Maine	New York	West Virginia
Maryland	North Carolina	Wisconsin
Massachusetts	North Dakota	

* Tennessee, a state with statistical census county divisions (CCDs) in 2000, reverted to MCDs in 2008.

In some states, all or some incorporated places are not part of any MCD; these places are termed independent places. Independent places also serve as primary legal subdivisions and have a Federal Information Processing Series (FIPS) county subdivision code and National Standard (ANSI) code that is the same as the FIPS and ANSI place code. In nine states—Maine, Massachusetts, New Hampshire, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Dakota, and Wisconsin—all incorporated places are independent places. In other states, incorporated places are part of, or dependent within, the MCDs in which they are located, or the pattern is mixed—some incorporated places are independent of MCDs and others are included within one or more MCDs.

The MCDs in 12 states (Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Wisconsin) also serve as general-purpose local governments that can perform the same governmental functions as incorporated places. The Census Bureau presents data for these MCDs in all data products for which place data are provided.

In New York and Maine, American Indian reservations (AIRs) generally exist outside the jurisdiction of any town (MCD) and thus also serve as the equivalent of MCDs for purposes of data presentation.

In states with MCDs, the Census Bureau assigns a default FIPS county subdivision code of 00000 and ANSI code of eight zeroes in some coastal, territorial sea, and Great Lakes water where county subdivisions do not legally extend into the Great Lakes or out to the 3-mile limit.

Statistical Entities

Census county divisions (CCDs) are areas delineated by the Census Bureau in cooperation with state, tribal, and local officials for statistical purposes. CCDs have no legal function and are not governmental units. CCD boundaries usually follow visible features and usually coincide with census tract boundaries. The name of each CCD is based on a place, county, or well-known local name that identifies its location. CCDs exist where:

1. There are no legally established MCDs.
2. The legally established MCDs do not have governmental or administrative purposes.
3. The boundaries of the MCDs change frequently.
4. The MCDs are not generally known to the public.

CCDs exist within the following 20* states:

Alabama	Hawaii	Oregon
Arizona	Idaho	South Carolina
California	Kentucky	Texas
Colorado	Montana	Utah
Delaware	Nevada	Washington
Florida	New Mexico	Wyoming
Georgia	Oklahoma	

* Tennessee, a CCD state in 2000, reverted to a MCD state in 2008.

Census subareas are statistical subdivisions of boroughs, city and boroughs, municipalities, and census areas, all of which are statistical equivalent entities for counties in Alaska. The state of Alaska and the Census Bureau cooperatively delineate the census subareas to serve as the statistical equivalents of MCDs.

Unorganized territories (UTs) are defined by the Census Bureau in nine MCD states where portions of counties or equivalent entities are not included in any legally established MCD or incorporated place. The Census Bureau recognizes such separate pieces of territory as one or more separate county subdivisions for census purposes. It assigns each unorganized territory a descriptive name, followed by the designation "UT" and a county subdivision FIPS and ANSI code. The following states have unorganized territories:

Arkansas	Maine	North Carolina
Indiana	Minnesota	North Dakota
Iowa	New York	South Dakota

GEOGRAPHIC AREA ATTRIBUTES

The Census Bureau collects and maintains information describing selected attributes and characteristics of geographic areas. These attributes are Federal Information Processing Series (FIPS) class code, functional status, legal/statistical area description, internal point, and name of geographic entities.

FIPS class codes describe the general characteristics of a geographic area related to its legal or statistical status, governmental status, and in some cases relationship to other geographic entities. Class codes exist for counties; county subdivisions; subminor civil divisions; places; consolidated cities; Alaska Native Regional Corporations; American Indian, Alaska Native, and Native Hawaiian areas; and American Indian tribal subdivisions.

Functional status describes whether a geographic entity is a functioning governmental unit, has an inactive government, is an administrative area without a functioning government, or is a statistical area identified and defined solely for tabulation and presentation of statistical data. Functional status codes are:

- A Active government providing primary general-purpose functions.
- B Active government that is partially consolidated with another government but with separate officials providing primary general-purpose functions.
- C Active government consolidated with another government with a single set of officials.
- E Active government providing special-purpose functions.
- F Fictitious entity created to fill the Census Bureau's geographic hierarchy.
- G Active government that is subordinate to another unit of government and thus, not considered a functioning government.
- I Inactive governmental unit that has the power to provide primary special-purpose functions.
- N Nonfunctioning legal entity.
- S Statistical entity.

Internal point—The Census Bureau calculates an internal point (latitude and longitude coordinates) for each geographic entity. For many geographic entities, the internal point is at or near the geographic center of the entity. For some irregularly shaped entities (such as those shaped like a crescent), the calculated geographic center may be located outside the boundaries of the entity. In such instances, the internal point is identified as a point inside the entity boundaries nearest to the calculated geographic center and, if possible, within a land polygon.

Legal/statistical area description (LSAD)—The LSAD describes the particular typology for each geographic entity; that is, whether the entity is a borough, city, county, town, or township, among others. For legal entities, the LSAD reflects the term that appears in legal documentation pertaining to the entity, such as a treaty, charter, legislation, resolution, or ordinance. For statistical entities, the LSAD is the term assigned by the Census Bureau or other agency defining the entity. The LSAD code is a two-character field that corresponds to a description of the legal or statistical type of entity and identifies whether the LSAD term should be capitalized and should precede or follow the name of the geographic entity. Note that the same LSAD code is assigned to entities at different levels of the geographic hierarchy when they share the same LSAD. For example, the Census Bureau assigns the same LSAD code ("21") to boroughs in New York and Connecticut, although they are county subdivisions in the former and incorporated places in the latter.

Name—Each geographic entity included in Census Bureau products has a name. For most geographic entities, the name is derived from the official legally recognized name, is assigned by local officials participating in Census Bureau statistical area programs, or is based on component entities and determined according to specified criteria. For legal entities, the name appearing in Census Bureau products may be the more commonly used name rather than the name as it appears in legal documents. For example, "Virginia" instead of "the Commonwealth of Virginia"; "Baltimore" instead of "City of Baltimore." In some instances, the name for an entity in Census Bureau products will reflect the official name as well as a more commonly used name listed parenthetically; i.e., San Buenaventura (Ventura), CA, or Bath (Berkeley Springs), WV. For some types of geographic entities, the name reflected in Census Bureau products may be the geographic entity code assigned by local officials. For example, a census tract's name

is the actual number assigned by local officials, such as 1.01, whereas the census tract code would reflect a full four-digit base code and two-digit suffix (for example, for the preceding tract named 1.01, 000101).

GEOGRAPHIC NAMES INFORMATION SYSTEM

The Geographic Names Information System (GNIS) is the federal standard for geographic nomenclature. The U.S. Geological Survey (USGS) developed the GNIS for the U.S. Board on Geographic Names as the official repository of domestic geographic names data; the official vehicle for geographic names use by all departments of the federal government; and the source for applying geographic names to federal electronic and printed products. The GNIS contains information about physical and cultural geographic features of all types in the United States and its territories, current and historical, but not including roads and highways. The database holds the federally recognized name of each feature and defines the feature location by state, county, USGS topographic map, and geographic coordinates. Other attributes include names or spellings other than the official name, feature designations, feature classification, historical and descriptive information, and, for some categories, the geometric boundaries.

GEOGRAPHIC NAMES INFORMATION SYSTEM IDENTIFIER

The Geographic Names Information System Identifier (GNIS ID) is a variable length, permanent, numeric identifier of up to ten digits in length that identifies each entity uniquely within the nation. The GNIS is the new American National Standards Institute (ANSI) national standard code for several entity types. Because each entity's GNIS ID is permanent, it will not change if the entity changes its name or if creation of a new entity changes the alphabetic sort. (Federal Information Processing Series codes are assigned based on the alphabetic sorting of entity names within a state and occasionally require changing codes to maintain the alphabetic sort.) The GNIS IDs are assigned sequentially and stored in a right-justified, variable-length, numeric field without leading zeroes. The GNIS now contains more than 2.6 million sequential records, thus no GNIS ID currently exceeds seven digits. The Census Bureau portrays the GNIS ID in its data products as a fixed-width eight-character field with leading zeroes.

ISLAND AREAS OF THE UNITED STATES

The Island Areas of the United States are American Samoa, Guam, the Commonwealth of the Northern Mariana Islands (Northern Mariana Islands), and the United States Virgin Islands.

The Census Bureau treats the Island Areas as entities that are statistically equivalent to states for data presentation purposes; data for the Island Areas, however, are presented separately from data for the United States and Puerto Rico. Geographic definitions specific to the Island Areas are shown in the appropriate publications and documentation that accompany the data products for the Island Areas. Sometimes the Island Areas are referred to as "Island Territories" or "Insular Areas." For the 1990 and previous censuses, the U.S. Census Bureau referred to the entities as "Outlying Areas."

Separate from the Island Areas is the term "U.S. Minor Outlying Islands." The U.S. Minor Outlying Islands refers to certain small islands under U.S. jurisdiction in the Caribbean and Pacific: Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Islands, Navassa Island, Palmyra Atoll, and Wake Island. These areas usually are not part of standard data products.

MAF/TIGER DATABASE

MAF/TIGER is an acronym for the Master Address File/Topologically Integrated Geographic Encoding and Referencing system or database. It is a digital (computer-readable) geographic database that automates the mapping and related geographic activities required to support the Census Bureau's census and survey programs. The Census Bureau developed the TIGER® system to automate the geographic support processes needed to meet the major geographic needs of the 1990 census: producing cartographic products to support data collection and map presentations, providing geographic structure for tabulation and dissemination of the collected statistical data, assigning residential and employer addresses to the

correct geographic location and relating those locations to the geographic entities used for data tabulation, and so forth. During the 1990s, the Census Bureau developed an independent Master Address File (MAF) to support field operations and allocation of housing units for tabulations. After Census 2000, both the address-based MAF and geographic TIGER® databases merged to form MAF/TIGER. The content of the MAF/TIGER database is undergoing continuous updates and is made available to the public through a variety of TIGER/Line® shapefiles.

PLACE

Incorporated Places are those reported to the Census Bureau as legally in existence as of January 1, 2010, as reported in the latest Boundary and Annexation Survey (BAS), under the laws of their respective states. An incorporated place is established to provide governmental functions for a concentration of people as opposed to a minor civil division, which generally is created to provide services or administer an area without regard, necessarily, to population. Places always are within a single state or equivalent entity, but may extend across county and county subdivision boundaries. An incorporated place usually is a city, town, village, or borough, but can have other legal descriptions. For Census Bureau data tabulation and presentation purposes, incorporated places exclude:

- Boroughs in Alaska (treated as statistical equivalents of counties).
- Towns in the New England states, New York, and Wisconsin (treated as MCDs).
- Boroughs in New York (treated as MCDs).

Census Designated Places (CDPs) are the statistical counterparts of incorporated places, and are delineated to provide data for settled concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state in which they are located. The boundaries usually are defined in cooperation with local or tribal officials and generally updated prior to each decennial census. These boundaries, which usually coincide with visible features or the boundary of an adjacent incorporated place or another legal entity boundary, have no legal status, nor do these places have officials elected to serve traditional municipal functions. CDP boundaries may change from one decennial census to the next with changes in the settlement pattern; a CDP with the same name as in an earlier census does not necessarily have the same boundary. CDPs must be contained within a single state and may not extend into an incorporated place. There are no population size requirements for CDPs.

Hawaii is the only state that has no incorporated places recognized by the Census Bureau. All places shown in decennial census data products for Hawaii are CDPs. By agreement with the state of Hawaii, the Census Bureau does not show data separately for the city of Honolulu, which is coextensive with Honolulu County. In Puerto Rico, which also does not have incorporated places, the Census Bureau recognizes only CDPs and refers to them as comunidades or zonas urbanas. Guam also has only CDPs.

Place Codes are of two types. The five-digit Federal Information Processing Series (FIPS) place code is assigned based on alphabetical sequence within a state. If place names are duplicated within a state and they represent distinctly different areas, a separate code is assigned to each place name alphabetically by the primary county in which each place is located, or if both places are in the same county, they are assigned alphabetically by their legal descriptions (for example, "city" before "village"). Places also are assigned an eight-digit National Standard (ANSI) code.

Dependent and Independent Places refers to the relationship of places to the county subdivisions. Depending on the state, incorporated places are either dependent within, or independent of, county subdivisions, or there is a mixture of dependent and independent places in the state and in a county. Dependent places are part of the county subdivision; the county subdivision code of the place is the same as that of the underlying county subdivision(s) but is different from the place code. Independent places are not part of any minor civil division (MCD) and serve as primary county subdivisions. The independent place FIPS code usually is the same as that used for the MCD for the place. The only exception is if the place is independent of the MCDs in a state (Iowa, Louisiana, Maryland, Nebraska, North Carolina, and

Virginia) in which the FIPS MCD codes are in the 90000 range. Then, the FIPS MCD and FIPS place codes will differ. CDPs always are dependent within county subdivisions and all places are dependent within statistical county subdivisions.

Consolidated City (Balance) Portions refer to the areas of a consolidated city not included in another separately incorporated place. For example, Butte-Silver Bow, MT, is a consolidated city (former Butte city and Silver Bow County) that includes the separately incorporated municipality of Walkerville city. The area of the consolidated city that is not in Walkerville city is assigned to Butte-Silver Bow (balance). The name of the area of a consolidated city not specifically within a separately incorporated place always includes the "(balance)" identifier. Balance portions of consolidated cities are included with other places in Census Bureau products.

POPULATION AND HOUSING UNIT DENSITY

Population and housing unit density are computed by dividing the total population or number of housing units within a geographic entity by the land area of that entity measured in square miles or in square kilometers. Density is expressed as "population per square mile (kilometer)" or "housing units per square mile (kilometer)."

PUBLIC USE MICRODATA AREAS

Public Use Microdata Areas (PUMAs) are geographic areas for which the Census Bureau provides selected extracts of raw data from a small sample of census records that are screened to protect confidentiality. These extracts are referred to as public use microdata sample (PUMS) files.

For the 2010 Census, each state, the District of Columbia, Puerto Rico, and some Island Area participants delineated PUMAs for use in presenting PUMS data based on a 5 percent sample of decennial census or American Community Survey data. These areas are required to contain at least 100,000 people. This is different from Census 2000 when two types of PUMAs were defined: a 5 percent PUMA as for 2010 and an additional super-PUMA designed to provide a 1 percent sample. The PUMAs are identified by a five-digit census code unique within state.

PUERTO RICO

The Census Bureau treats the Commonwealth of Puerto Rico as the statistical equivalent of a state for data presentation purposes.

Municipio

The primary legal divisions of Puerto Rico are termed "municipios." For data presentation purposes, the Census Bureau treats a municipio as the equivalent of a county in the United States.

Barrio, Barrio-Pueblo, and Subbarrio

The Census Bureau recognizes barrios and barrios-pueblo as the primary legal divisions of municipios. These entities are similar to the minor civil divisions (MCDs) used for reporting data in 29 states of the United States. Subbarrios in 23 municipios are the primary legal subdivisions of the barrios-pueblo and some barrios. The Census Bureau presents the same types of statistical data for these subminor civil divisions (sub-MCDs) as it does for the barrios and barrios-pueblo. (There is no geographic entity in the United States equivalent to the subbarrio.)

Zona Urbana and Comunidad

There are no incorporated places in Puerto Rico; instead, the Census Bureau provides data for two types of census designated places (CDPs): zonas urbanas, representing the governmental center of each municipio, and comunidades, representing other settlements. There are no minimum population size requirements for zonas urbanas and comunidades.

Some types of geographic entities do not apply in Puerto Rico. For instance, Puerto Rico is not in any census region or census division (see also "Congressional District").

SCHOOL DISTRICTS (ELEMENTARY, SECONDARY, AND UNIFIED)

School Districts are geographic entities within which state, county, local officials, the Bureau of Indian Affairs, or the U.S. Department of Defense provide public educational services for the area's residents. The Census Bureau obtains the boundaries, names, local education agency codes, and school district levels for school districts from state and local school officials for the primary purpose of providing the U.S. Department of Education with estimates of the number of children "at risk" within each school district, county, and state. This information serves as the basis for the Department of Education to determine the annual allocation of Title I funding to states and school districts.

The Census Bureau tabulates data for three types of school districts: elementary, secondary, and unified. Each school district is assigned a five-digit code that is unique within state. School district codes are the local education agency number assigned by the Department of Education and are not necessarily in alphabetical order by school district name.

The elementary school districts provide education to the lower grade/age levels and the secondary school districts provide education to the upper grade/age levels. Unified school districts provide education to children of all school ages in their service areas. In general, where there is a unified school district, no elementary or secondary school district exists; and where there is an elementary school district, the secondary school district may or may not exist.

The Census Bureau's representation of school districts in various data products is based both on the grade range that a school district operates and also the grade range for which the school district is financially responsible. For example, a school district is defined as an elementary school district if its operational grade range is less than the full kindergarten through 12 or prekindergarten through 12 grade range (for example, K-6 or pre-K-8). These elementary school districts do not provide direct educational services for grades 7-12, 9-12, or similar ranges. Some elementary school districts are financially responsible for the education of all school-aged children within their service areas and rely on other school districts to provide service for those grade ranges that are not operated by these elementary school districts. In these situations, in order to allocate all school-aged children to these school districts, the secondary school district code field is blank. For elementary school districts where the operational grade range and financially responsible grade range are the same, the secondary school district code field will contain a secondary school district code. There are no situations where an elementary school district does not exist and a secondary school district exists in Census Bureau records.

STATE OR STATISTICALLY EQUIVALENT ENTITY

States and Equivalent Entities are the primary governmental divisions of the United States. In addition to the 50 states, the Census Bureau treats the District of Columbia, Puerto Rico, American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands as the statistical equivalents of states for the purpose of data presentation.

STATE LEGISLATIVE DISTRICTS (UPPER AND LOWER CHAMBERS)

State Legislative Districts (SLDs) are the areas from which members are elected to state legislatures. The Census Bureau first reported data for SLDs as part of the 2000 Public Law (P.L.) 94-171 Redistricting Data File.

Current SLDs (2010 Election Cycle)—States participating in Phase 1 of the 2010 Census Redistricting Data Program voluntarily provided the Census Bureau with the 2006 election cycle boundaries, codes, and, in some cases, names for their SLDs. All 50 states, plus the District of Columbia and Puerto Rico, participated in Phase 1, State Legislative District Project (SLDP) of the 2010 Census Redistricting Data

Program. States subsequently provided legal changes to those plans through the Redistricting Data Office and/or corrections as part of Phase 2 of the 2010 Census Redistricting Data Program, as needed.

The SLDs embody the upper (senate—SLDU) and lower (house—SLDL) chambers of the state legislature. Nebraska has a unicameral legislature and the District of Columbia has a single council, both of which the Census Bureau treats as upper-chamber legislative areas for the purpose of data presentation. A unique three-character census code, identified by state participants, is assigned to each SLD within a state. In Connecticut, Hawaii, Illinois, Louisiana, Maine, Massachusetts, New Jersey, Ohio, and Puerto Rico, state officials did not define the SLDs to cover all of the state or state equivalent area (usually bodies of water). In these areas with no SLDs defined, the code “ZZZ” has been assigned, which is treated within state as a single SLD for purposes of data presentation. Maryland also has areas with no SLDs defined; in Maryland, these areas are coded with an initial “Z” by county or equivalent and treated as a unique SLD by county or equivalent. In Nebraska and the District of Columbia, the Census Bureau assigned the code 999 to represent a single SLDL where legally none exist.

SLD Names—The Census Bureau first reported names for SLDs as part of Phase 1 of the 2010 Census Redistricting Data Program. The SLD names with their translated legal/statistical area description are associated only with the current SLDs. Not all states provided names for their SLDs, therefore the code (or number) also serves as the name.

TRIBAL BLOCK GROUP

The 2010 tribal block group concept and criteria are completely different from those used in 2000. For the Census 2000, tribal block groups were the standard state-county-census tract-block group areas retabulated under an American Indian area hierarchy; that is, American Indian area-tribal census tract-tribal block group. Tribal block groups only were applicable to legal federally recognized American Indian reservation and off-reservation trust land areas. Tribal block groups were defined to provide statistically significant sample data for small areas within American Indian areas, particularly those American Indian areas that crossed state or county boundaries where these boundaries were not meaningful for statistical purposes. The 2000 tribal block groups used the block group numbers and comprised all blocks beginning with a single number.

The 2010 tribal block groups are defined independently of the standard county-based block group delineation. For federally recognized American Indian tribes with reservations or off-reservation trust land and a population less than 1,200, a single tribal block group is defined. Tribal participants in qualifying areas with a population greater than 1,200 could define additional block groups within their reservation and/or off-reservation trust land without regard to the standard block group configuration.

Tribal block groups will contain blocks beginning with the same number as the standard county-based block group and could contain seemingly duplicate block numbers. To better identify and differentiate tribal block groups from county-based block groups, tribal block groups use the letter range A through K (except “I,” which could be confused with a number “1”) to identify and code the tribal block group. Tribal block groups nest within tribal census tract.

TRIBAL CENSUS TRACT

The 2010 tribal census tract concept and criteria are completely different from those used in 2000. Tribal census tracts (also known as tribal tracts) in 2000 were the standard state-county-census tract areas retabulated under an American Indian area hierarchy; that is, American Indian area-tribal census tract. Federally recognized tribes with a reservation or off-reservation trust land delineated tribal census tracts working with local census tract participants to produce a single census tract plan. Tribal census tracts were designed to be permanent statistical divisions of American Indian areas for the presentation of comparable data between censuses, particularly for those American Indian areas that crossed state or county boundaries where these boundaries were not meaningful for statistical purposes.

For 2010, tribal census tracts are defined independently of the standard county-based tract delineation. For federally recognized American Indian tribes with reservations or off-reservation trust land and a population less than 2,400, a single tribal census tract is defined. Qualifying areas with a population greater than 2,400 could define additional tribal census tracts within their area.

In 2000, the tract number range of 9400 through 9499 was reserved for tribal census tracts and was required for those tribal census tracts that crossed state or county boundaries. Not all tribal census tracts in 2000, however, used this range. For 2010, tribal census tract codes will be six characters long with a leading "T" alphabetic character followed by five numeric codes having an implied decimal between the fourth and fifth character; for example, T01000, which translates as tribal census tract 10. Tribal block groups will nest within tribal census tract. Since individual blocks are defined within the standard state-county-census tract hierarchy, a tribal census tract can contain seemingly duplicate block numbers, thus tribal census tracts cannot be used to uniquely identify census blocks.

UNITED STATES

The United States consists of the 50 states and the District of Columbia.

URBAN AND RURAL

For the 2010 Census, the Census Bureau classified as urban all territory, population, and housing units located within urbanized areas (UAs) and urban clusters (UCs), both defined using the same criteria. The Census Bureau delineates UA and UC boundaries that represent densely developed territory, encompassing residential, commercial, and other nonresidential urban land uses. In general, this territory consists of areas of high population density and urban land use resulting in a representation of the "urban footprint." Rural consists of all territory, population, and housing units located outside UAs and UCs.

For the 2010 Census, the urban and rural classification was applied to the 50 states, the District of Columbia, Puerto Rico, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands.

Urbanized Areas (UAs)—An urbanized area consists of densely developed territory that contains 50,000 or more people. The Census Bureau delineates UAs to provide a better separation of urban and rural territory, population, and housing in the vicinity of large places.

Urban Clusters (UCs)—An urban cluster consists of densely developed territory that has at least 2,500 people but fewer than 50,000 people. The Census Bureau first introduced the UC concept for Census 2000 to provide a more consistent and accurate measure of urban population, housing, and territory throughout the United States, Puerto Rico, and the Island Areas.

Urban Area Titles and Codes—The title of each UA and UC may contain up to three incorporated place or census designated place (CDP) names and will include the two-letter U.S. Postal Service abbreviation for each state or statistically equivalent entity into which the UA or UC extends. However, if the UA or UC does not contain an incorporated place or CDP, the urban area title will include the single name of a minor civil division or populated place recognized by the U.S. Geological Survey's Geographic Names Information System.

Each UC and UA is assigned a five-digit numeric census code based on a national alphabetical sequence of all urban area names. A separate flag is included in data tabulation files to differentiate between UAs and UCs. In printed reports, this differentiation is included in the name.

Central Place—The 2010 Census urban areas will no longer include one or more designated central places. In preceding censuses, the central place included all incorporated or census designated places included in the urban area title, plus additional incorporated areas that met a population size criterion. The concept of central place for urban areas no longer is being applied.

Relationship to Other Geographic Entities—Geographic entities, such as metropolitan areas, counties, minor civil divisions, places, and census tracts, often contain both urban and rural territory, population, and housing units.

URBAN GROWTH AREAS

Urban Growth Areas (UGAs) are legally defined entities in Oregon and Washington that the Census Bureau includes in the MAF/TIGER database in agreement with the states. UGAs, which are defined around incorporated places, are used to regulate urban growth. UGA boundaries, which need not follow visible features, are delineated cooperatively by state and local officials and then confirmed in state law. UGAs are a pilot project first defined only in Oregon for Census 2000. Each UGA is identified by a five-digit numeric census code, usually the same as the five-digit Federal Information Processing Series (FIPS) code associated with the incorporated place for which the UGA is named.

VOTING DISTRICTS

Voting Districts (VTDs) refer to the generic name for geographic entities, such as precincts, wards, and election districts, established by state governments for the purpose of conducting elections. States voluntarily participating in Phase 2 of the 2010 Census Redistricting Data Program provided the Census Bureau with boundaries, codes, and names for their VTDs. Each VTD is identified by a one-to-six-character alphanumeric census code that is unique within county. The code "ZZZZZZ" identifies a portion of counties (usually bodies of water) for which no VTDs were identified. For the 2010 Census, only Rhode Island did not participate in Phase 2 (the Voting District/Block Boundary Suggestion Project) of the 2010 Census Redistricting Data Program. Kentucky chose not to provide VTDs as part of their participation in Phase 2, and the states of Montana and Oregon provided VTDs for some counties. Therefore, for 2010 Census data products, no VTDs exist in select counties in Montana and Oregon or for the states of Rhode Island and Kentucky in their entirety. Participating states often submitted VTDs conforming to the feature network in the MAF/TIGER database rather than the complete legal boundary of the VTD. If requested by the participating state, the Census Bureau identified the VTDs that represent an actual voting district with an "A" in the voting district indicator field. Where a participating state indicated that the VTD has been modified to follow existing features, the VTD is a pseudo-VTD, and the voting district indicator contains "P."

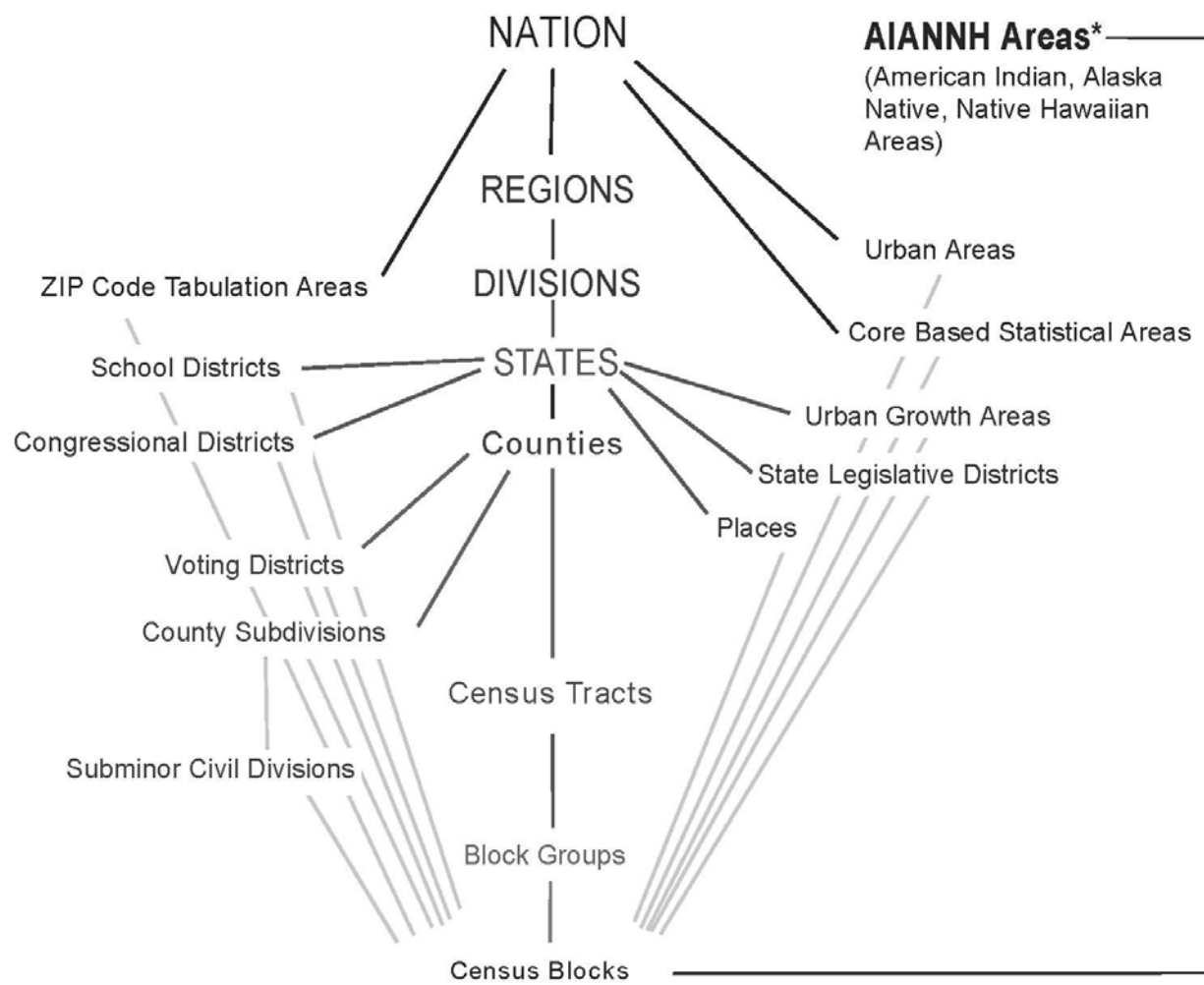
ZIP CODE TABULATION AREAS

ZIP Code Tabulation Areas (ZCTAs) are approximate area representations of U.S. Postal Service (USPS) five-digit ZIP Code service areas that the Census Bureau creates using whole blocks to present statistical data from censuses and surveys. The Census Bureau defines ZCTAs by allocating each block that contains addresses to a single ZCTA, usually to the ZCTA that reflects the most frequently occurring ZIP Code for the addresses within that tabulation block. Blocks that do not contain addresses but are completely surrounded by a single ZCTA (enclaves) are assigned to the surrounding ZCTA; those surrounded by multiple ZCTAs will be added to a single ZCTA based on limited buffering performed between multiple ZCTAs. The Census Bureau identifies five-digit ZCTAs using a five-character numeric code that represents the most frequently occurring USPS ZIP Code within that ZCTA, and this code may contain leading zeros.

There are significant changes to the 2010 ZCTA delineation from that used in 2000. Coverage was extended to include the Island Areas for 2010 so that the United States, Puerto Rico, and the Island Areas have ZCTAs. Unlike 2000, when areas that could not be assigned to a ZCTA were given a generic code ending in "XX" (land area) or "HH" (water area), for 2010 there is no universal coverage by ZCTAs, and only legitimate five-digit areas are defined. The 2010 ZCTAs will better represent the actual Zip Code service areas because the Census Bureau initiated a process before creation of 2010 blocks to add block boundaries that split polygons with large numbers of addresses using different Zip Codes.

Data users should not use ZCTAs to identify the official USPS ZIP Code for mail delivery. The USPS makes periodic changes to ZIP Codes to support more efficient mail delivery. The ZCTAs process used primarily residential addresses and was biased towards Zip Codes used for city-style mail delivery, thus there may be Zip Codes that are primarily nonresidential or boxes only that may not have a corresponding ZCTA.

Figure A-1.

Standard Hierarchy of Census Geographic Entities

* Refer to the "Hierarchy of American Indian, Alaska Native, and Native Hawaiian Areas"

Figure A-2.

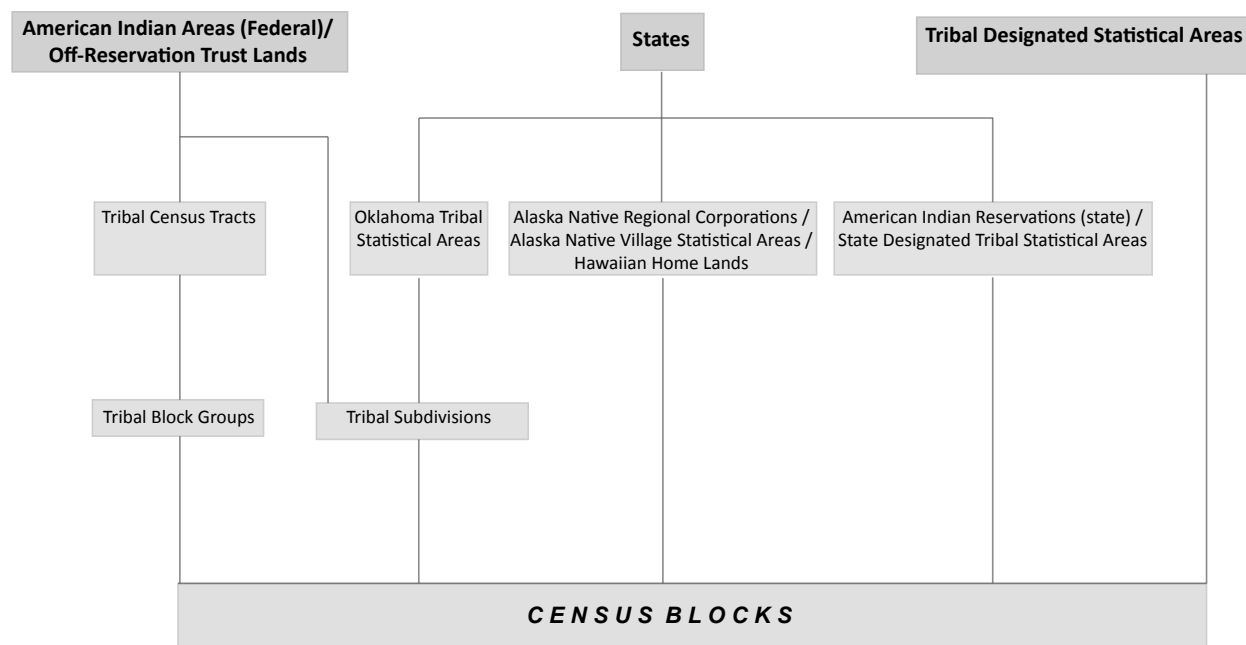
Hierarchy of American Indian, Alaska Native, and Native Hawaiian Areas

Figure A-3.

Census Regions, Census Divisions, and Their Constituent States

Northeast Region

New England Division:

Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut

Middle Atlantic Division:

New York, New Jersey, Pennsylvania

Midwest Region

East North Central Division:

Ohio, Indiana, Illinois, Michigan, Wisconsin

West North Central Division:

Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas

South Region

South Atlantic Division:

Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida

East South Central Division:

Kentucky, Tennessee, Alabama, Mississippi

West South Central Division:

Arkansas, Louisiana, Oklahoma, Texas

West Region

Mountain Division:

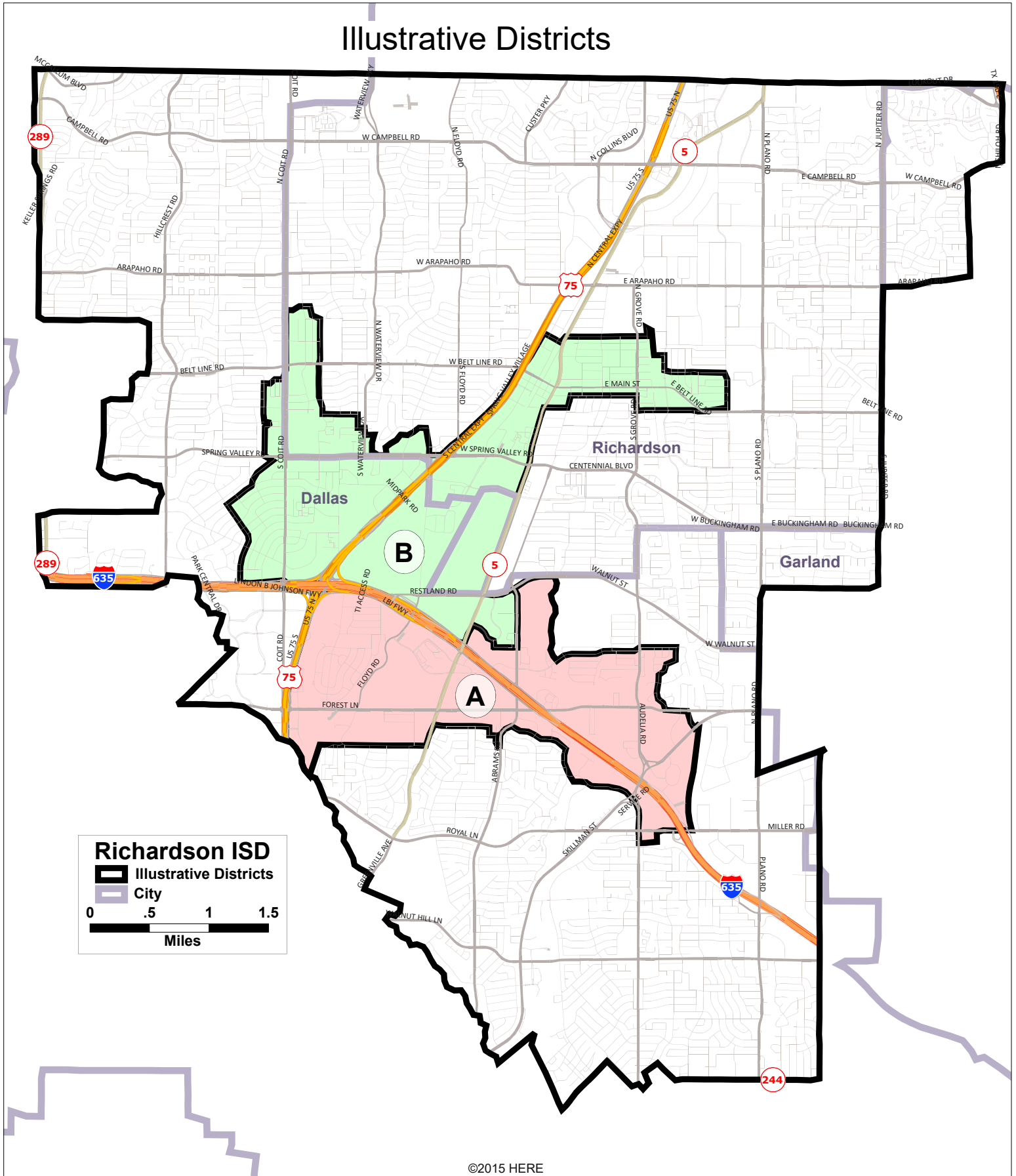
Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada

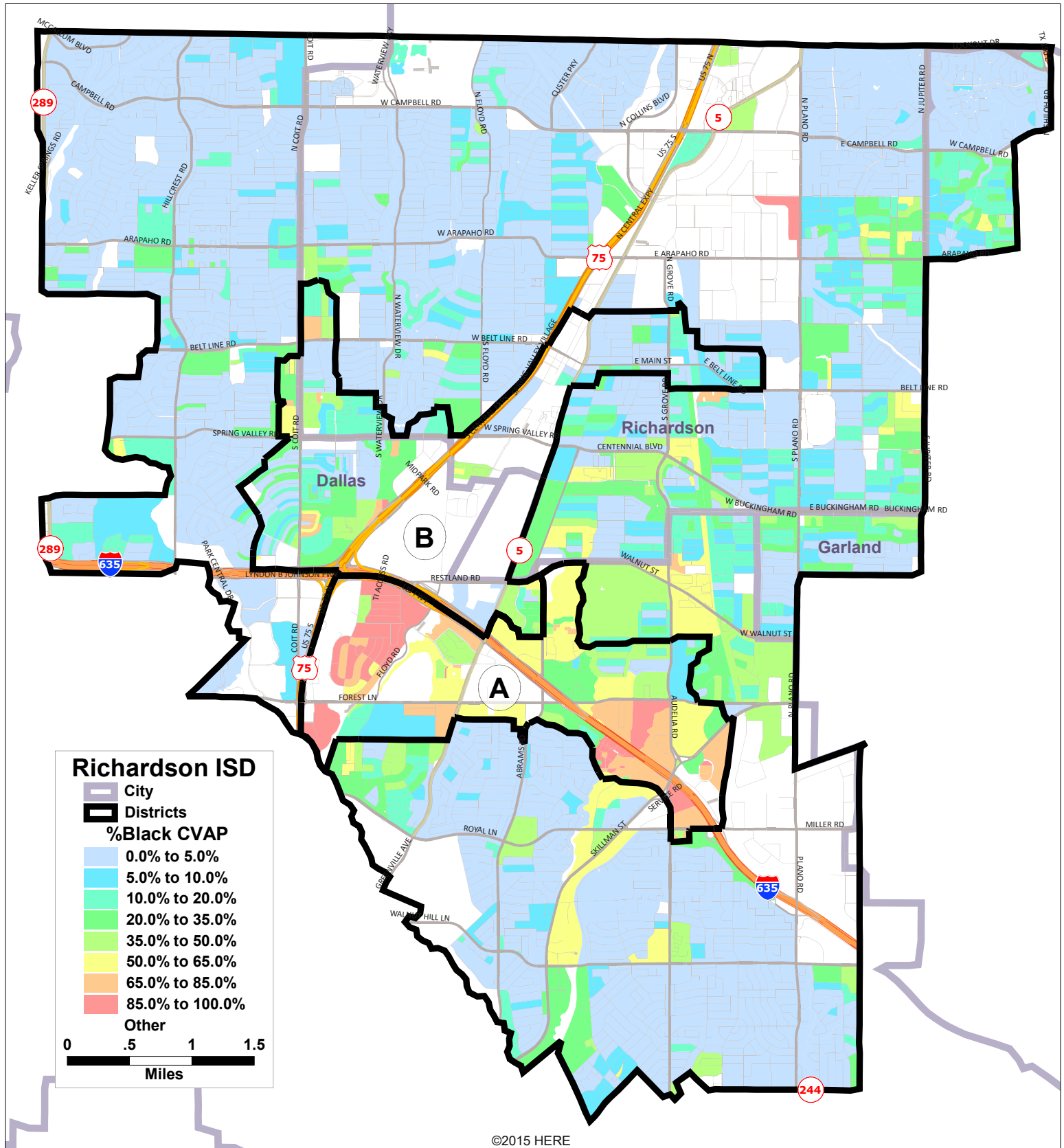
Pacific Division:

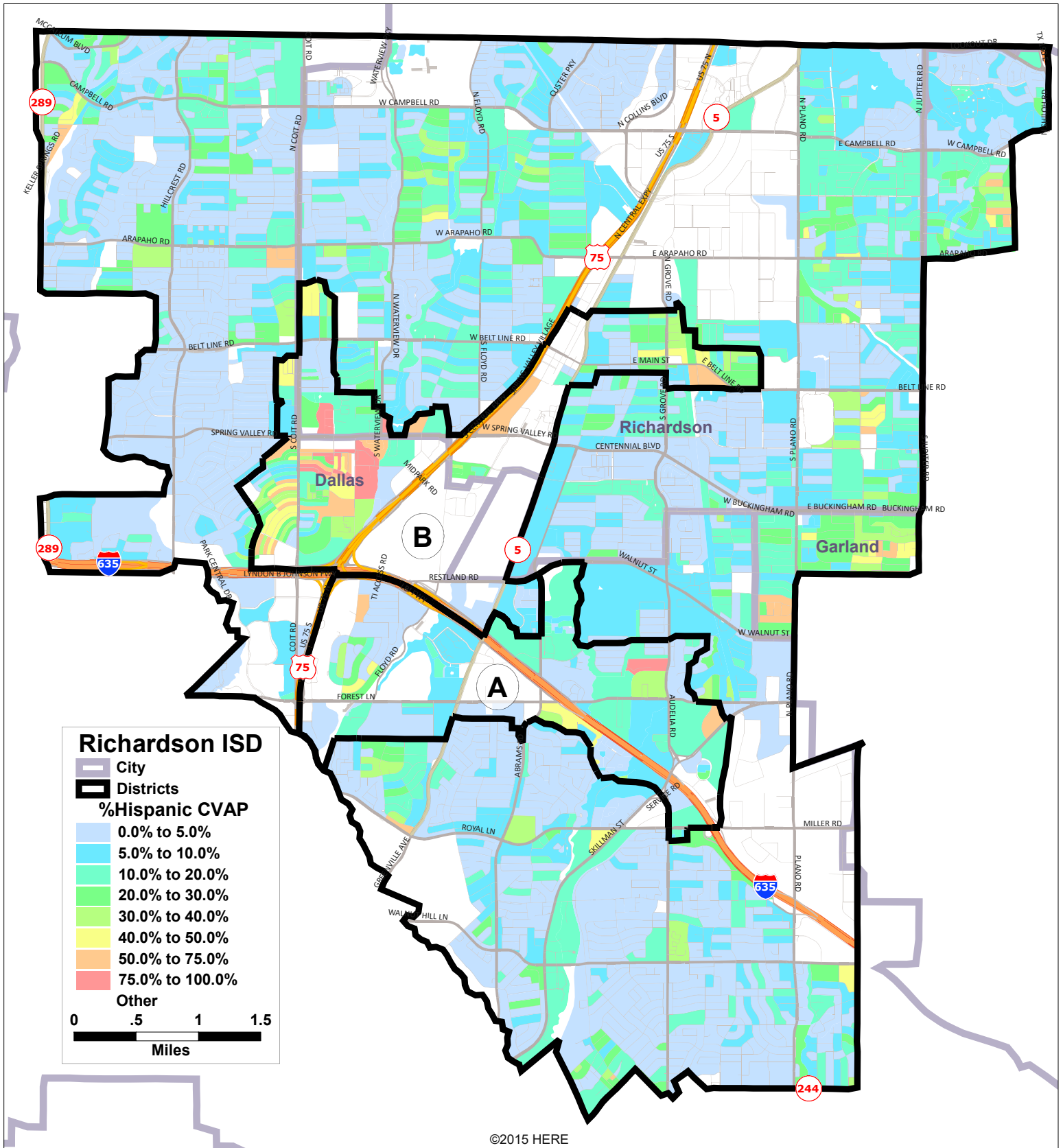
Washington, Oregon, California, Alaska, Hawaii

Appendix D

Illustrative Districts







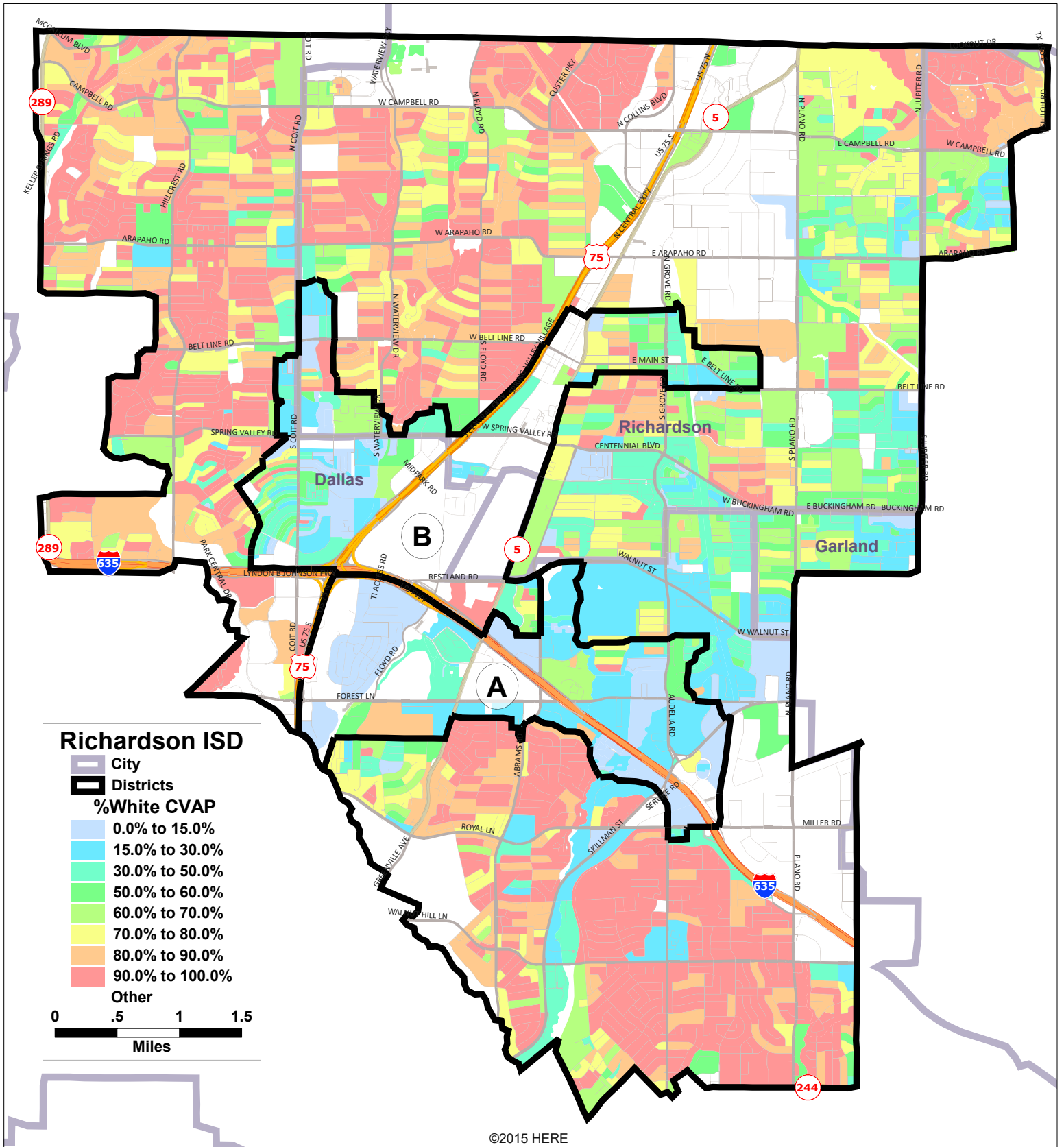


EXHIBIT B

Expert Report:

Analysis of At-Large Board of Trustees Elections in The Richardson Independent School District

Kenneth R. Mayer, Ph.D.
July 16, 2018

I. Scope of Assignment

I have been asked by plaintiff's counsel to offer opinions about whether the at-large nature of elections utilized by the Richardson Independent School District (RISD) to elect its Board of Trustees has the effect of denying African American or Hispanic¹ voters the opportunity to elect candidates of their choice.

This report contains my opinions on these matters. To develop these opinions, I relied upon technical and specialized knowledge I gained from my education, training, and experience; widely accepted and reliable statistical methods; and my knowledge of the academic literature on elections and voting rights. My opinions are based on the review and analysis of the following information and materials:

1. Precinct-level demographic, voter registration, turnout, and election result data in the RISD geographic area from 2008 to 2018 provided by demographer David Ely, based upon analysis of data provided by the Dallas County Elections Department.
2. Historical election data and precinct-level election and demographic data published by the Dallas County Elections Department.
3. Election returns, voter registration data, and precinct assignments published by the Texas Legislative Council.
4. The 2012 Cooperative Congressional Election Study, a large scale survey archived at Harvard University.
5. Published RISD demographic data on student population.
6. Peer-reviewed academic literature and other sources cited in this report

II. Background and Qualifications

I have a Ph.D. in political science from Yale University, where my graduate training included courses in econometrics and statistics. My undergraduate degree is from the University of California, San Diego, where I majored in political science and minored in applied mathematics. I have been on the faculty of the political science department at the University of Wisconsin-Madison since August 1989. My curriculum vitae is attached to this report as Appendix A.

All publications that I have authored and published in the past ten years appear in my curriculum vitae. Those publications include the following peer-reviewed journals: *Journal of Politics*, *American Journal of Political Science*, *Election Law Journal*, *Legislative Studies Quarterly*, *Presidential Studies Quarterly*, *American Politics Research*, *Congress and*

¹ The terms "Hispanic" and "Latino" are often used interchangeably, and the differences between the usages are often a matter of preference or self-identification. For consistency, and because I rely on Spanish Surname data in the ecological inference analysis, I use Hispanic throughout this report in the same manner that the U.S. Census Bureau does, to mean individuals "of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race" (Humes, Jones, and Ramirez 2011, 1).

the Presidency, Public Administration Review, Political Research Quarterly, and *PS: Political Science and Politics*. I have also published in law reviews, including the *Richmond Law Review*, the *UCLA Pacific Basin Law Journal*, and the *University of Utah Law Review*. My work on campaign finance has been published in *Legislative Studies Quarterly*, *Regulation*, *PS: Political Science and Politics*, *Richmond Law Review*, the Democratic Audit of Australia, and in an edited volume on electoral competitiveness published by the Brookings Institution Press. My research on campaign finance has been cited by the U.S. Government Accountability Office, and by legislative research offices in Connecticut and Wisconsin.

My work on election administration has been published in the *Election Law Journal*, *American Journal of Political Science*, *Public Administration Review*, *Political Research Quarterly*, and *American Politics Research*. I was part of a research group retained by the Wisconsin Government Accountability Board to review their compliance with federal mandates and reporting systems, and to survey local election officials throughout the state. I serve on the Steering Committee of the Wisconsin Elections Research Center, a unit with the UW-Madison College of Letters and Science. In 2012, I was retained by the United States Department of Justice to analyze data and methods regarding Florida's efforts to identify and remove claimed ineligible noncitizens from the statewide file of registered voters.

In the past eight years, I have testified as an expert witness in trial or deposition in the following cases:

Federal: *League of Women Voters of Michigan, et al. v. Johnson*, No. 2:17-cv-14148-DPH-SDD (S.D. Mich. 2018); *One Wis. Institute, Inc. v. Thomsen* 198 F. Supp. 3d 896 (W.D. Wis. 2016); *Whitford v. Gill*, 218 F. Supp. 3d 837 (W.D. Wis. 2016); *Baldus v. Brennan*, 849 F. Supp. 2d 840 (E.D. Wis. 2012); *McComish v. Brewer*, No. CV-08-1550, 2010 WL 2292213 (D. Ariz. 2010).

State: *Milwaukee Branch of the NAACP v. Walker*, 2014 WI 98, 357 Wis. 2d 469, 851 N.W. 2d 262 (Wis. Circuit Ct., 2012); *Kenosha Cnty. v. City of Kenosha*, No. 11-CV-1813 (Wis. Circuit Ct., Kenosha, WI, 2011).

Courts consistently have accepted my expert opinions, and the basis for those opinions. No court has ever excluded my expert opinion under *Daubert* or any other standard. Courts have cited my expert opinions in their decisions, finding my opinions reliable and persuasive. See *Whitford v. Gill*, 218 F. Supp. 3d 837 (W.D. Wis. 2016); *One Wis. Institute, Inc. v. Thomsen* 198 F. Supp. 3d 896 (W.D. Wis. 2016); *Baldus v. Brennan*, 849 F. Supp. 2d 840 (E.D. Wis. 2012); *Milwaukee Branch of the NAACP v. Walker*, 2014 WI 98, 357 Wis. 2d 469, 851 N.W. 2d 262 (Wis. Circuit Ct., 2012); *Baumgart v. Wendelberger* 2002 WL 34127471 (E.D. Wis. 2002).

I am being compensated at a rate of \$350 per hour. I am independent and impartial. My compensation is not dependent on either the substance of my opinion or the outcome of this case.

III. Summary of Opinions

My conclusions can be summarized as follows:

- The timing and structure of RISD Board elections reduce representation of minority groups, impeding their ability to equally participate in the political process. This is especially a function of the at-large character of RISD Board elections, which dilutes the voting power of minority populations. These groups would comprise a much higher percentage of the citizen voting age population (CVAP) in a single member district-based system.
- The dilution of the vote of minority groups is exacerbated by the low turnout character of Board of Trustee elections, which results in Hispanic and African American voters being a disproportionately small percentage of the electorate. The RISD Citizen Voting Age Population (CVAP) was 20.9% African American and 11.5% Hispanic in May 2017. Among voters in the election held that month (in which turnout was 8.8% of registered voters), only 4.1% of voters were Hispanic and 7.5% were African American, representing a roughly two-thirds drop in representation of these groups compared to their composition of the eligible voting population.
- RISD Board elections are usually uncontested, and contested elections are almost never competitive. Between 2008 and 2018, 28 board seats were up for election (including 1 runoff). In 18 of these contests (64.2%) candidates faced no opposition, and Board elections were actually cancelled in six election cycles because none of the candidates running faced an opponent. In the 10 contested elections over that span, the average margin of victory was 41.8%. The lack of competitiveness reduces the likelihood of candidate emergence, which historically has worked against nonwhite candidates who have less access to the resources and political support to make a campaign viable.
- There is evidence of racial bloc voting in Board elections, as white voters are overwhelmingly likely to support white candidates over minority candidates. Endogenous elections to the Board of Trustees do not show strong evidence of minority voter cohesion, but the lack of strong statistical evidence is because there were no minority candidates within the last 10 years who received more than an extremely low percentage of the vote. Exogenous elections, including the 2008 Democratic presidential primary, the 2012 presidential election, and the 2018 Democratic Texas gubernatorial primary, show strong evidence of minority vote cohesion and evidence of racial bloc voting among white voters.
- The Board of Trustees has had no minority membership since 2010, and has never had a Latino board member. As far as I have been able to determine, no minority candidate has ever won a contested election to the RISD Board of Trustees.
- African American and Hispanic populations in the RISD face socioeconomic disadvantages that “hinder their ability to participate effectively in the political process.” Members of these minority groups have median household incomes half or less of white households; are much less likely to have high incomes; are four times more likely to be living in poverty; are more likely to be disabled and lack health insurance; are more

likely to have limited English proficiency; and are far less likely to have either a high school diploma or a bachelor's degree. Many of these disadvantages can be plausibly connected to discriminatory practices in the educational, economic, and political realms.

IV. ANALYSIS

A. Richardson Independent School District Voting Age and Student Demographics

The Richardson Independent School District (hereafter RISD) is a large municipal school district in north Dallas County. The district includes parts of three cities in Dallas County: the majority of RISD is located in the City of Dallas, a portion is in the City of Richardson, and a small part is in the City of Garland. About 60% of registered voters in the district live in Dallas, 35% in Richardson, and 6% in Garland.² The total population is approximately 236,000.

The Citizen Voting Age Population (CVAP) of RISD in May 2017 was 144,121, 59% of whom were White, 20.6% African American, 11.5% Hispanic, and 8.9% other races (including multiracial individuals). In 2017-2018, RISD data show that the student population was 29.7% White, 38.5% Hispanic, 21.4% African American, and 9.4% other races (including multiracial). About 25.3% of students were classified as Limited English Proficiency (LEP), and 54.9% as Economically Disadvantaged.³

Minority citizen voting age populations are concentrated in a relatively small part of the RISD, mostly in and around the Hamilton Park neighborhood in Dallas. In May 2017, there were seven precincts or sub-precincts in the RISD with more than 50% African American CVAP, all located in the city of Dallas.⁴ These precincts have a combined CVAP of 19,949, of which 62.8% is African American. There are six precincts or sub-precincts with more than 30% Hispanic CVAP, all but one located in the city of Dallas.⁵ These precincts have a combined CVAP of 6,727, of which 34.8% is Hispanic.

B. School Board Trustee Elections

RISD School Board members ("Trustees") are elected on an at-large basis, with candidates running for designated district-wide seats ("Places") with 3-year terms. The places do not have

² Data from Dallas County Elections Office, "2013 Voting Precincts District Listing (Whole and Sub Precincts), at <https://www.dallascountyvotes.org/election-results-and-maps/voting-precincts-maps/2013-voting-precincts/>.

³ *Richardson ISD Facts and Figures 2017-2018*, http://www.risd.org/Group/AboutRISD/AboutRISD_Docs/RISD_FactsandFigures.pdf; The Texas Education Agency classifies a student as Limited English Proficient "when 1) a language other than English is used as the primary language in the home and 2) the student's English language proficiency is determined to be limited by a Language Proficiency Assessment Committee (LPAC) or as indicated by a test of English proficiency. Most students identified as limited English proficient receive bilingual or English as a second language instruction." An Economically Disadvantaged student is "one who is eligible for free or reduced-price meals under the National School Lunch and Child Nutrition Program." See Texas Education Agency, Division of Research and Analysis, *Glossary of Terms*, 2008-2009. <https://rptsvr1.tea.texas.gov/acctres/gloss0809.html>.

⁴ Precincts 1003, 1029, and 1038-1042.

⁵ Precincts 1035-1037, 1129, 1704, and 2050. Precinct 1704 is in Garland.

any geographic significance. Elections for places 1 and 2 were most recently held in 2018; places 3 and 4 in 2016; and places 6 and 7 in 2017. Elections take place in May. Trustees serve without compensation.⁶

A large amount of academic literature on electoral systems in general, and on school Board elections in particular, has demonstrated that election rules matter: The timing, partisanship, and representational structures of school Board elections shape who is willing to run, whether elections are competitive, how candidates and officeholders engage with the public, who wins, and how the results affect policy (Meier and Juenke 2005; Hajnal and Trounstein 2005; Allen and Plank 2005; Welch and Karnig 1978; Leal, Martinez-Ebers and Meier 2004; Knowles 2015; Hess and Leal 2005; Trounstein and Valdin 2008; Krebs 1999; Stewart, England and Meier 1989). This literature provides the context to understand the effect of this structure on the ability of minority groups to participate in the electoral process.

The context is straightforward: the at-large nature of RISD Board of Trustees elections dilutes the voting power of Hispanic and African American voters and prevents members of these groups from having a meaningful opportunity to effectively participate in the political process and elect representatives of their choice. This effect is exacerbated by the extremely low turnout in Board elections (addressed in section D, below), which further reduces minority participation; by the lack of competitiveness of Board elections, which has a disproportionate effect on potential and declared minority candidates; by historic patterns of discrimination and economic disadvantages against members of minority groups, which hinder the ability to participate; and by patterns of racially polarized voting, in which white voters vote against minority candidates by large margins.

C. **Electoral History**

Table 1 shows the results for Board elections since 2008. Over that time span, 28 places have been up for election.⁷ Board elections in a cycle were cancelled altogether in six years because no seat was contested (a total of 13 contests). In five others, a candidate ran unopposed in an election held because other seats in that cycle were contested. In all, 64% of elections over this period (18 of 28) were uncontested.

When seats *are* contested the result is almost always a landslide. The average margin of victory in contested races since 2008 is 41.8%, and there have been only two races in that time that were remotely competitive: the 2017 Place 7 election in which Kristin Kuhne defeated Lynn Davenport by 8.8%, and the 2013 Place 4 election, in which Rachel Chumney came in first in a 3-way contest by 3.3%. Because Chumney won less than 50% of the vote, the top two candidates proceeded to a runoff, which incumbent Lanet Greenhaw won 76.9%-24.1%, a winning margin of 52.8%.

The lack of competitiveness means that incumbents are, for all practical purposes, unbeatable. In the 2008-2018 period I analyzed, no incumbent lost an election. As a rule, the only way newcomers can be elected to the Board is to run for an open seat.

⁶ <http://www.risd.org/bot/>. In May 2017 a special election was held for Place 3, because the incumbent elected in 2016, Kris Oliver, resigned from the Board in January 2017.

⁷ This includes 26 regular elections, 1 special election in 2017 to replace an incumbent who resigned, and 1 runoff election in 2013.

Table 1				
Trustee Election History				
Year	Place	Candidates	Vote	Notes
2018	1, 2	Election cancelled.		
2017	6	Bono	100.0%	Unopposed
	7	Davenport	45.6%	
		Kuhne	54.4%	
	3	Armstrong	12.4%	
	3 (special)	Prado	10.1%	
2016		Clardy	55.0%	
		Eager	22.6%	
	3	Clayton	26.9%	
		Oliver	73.1%	
	4	Patterson	100.0%	Unopposed
2015	5	Linn	100.0%	Unopposed
	1,2	Election cancelled		
	6	Bono	64.1%	
2014		Chumney	35.9%	
	7	Kuhne	69.2%	
		Yarbrough	23.3%	
		Abadie	7.6%	
2013	4	Greenhaw	76.9%	Runoff
		Chumney	24.1%	
	3	Oliver	100.0%	Unopposed
		Abadie	13.6%	
	4	Greenhaw	41.6%	
		Chumney	44.8%	
2012	5	Holburn	100.0%	Unopposed
	1, 2	No results reported		
2011	6, 7	No results reported		
2010	3	Smyers	10.7%	
		Oliver	70.8%	
		Gordon	11.8%	
		Write-in	6.7%	
	4	Greenhaw	81.6%	
		Najera Hague	18.4%	
2009	5	Holburn	88.6%	
		Chari	11.4%	
2008	1 and 2	No results reported		
2008	3, 4, 5	No results reported		

During the period I analyzed, no minority candidate was elected to the Board, and the three minority candidates who did run (Benjamin Prado in 2017, and Jennifer Najera Hague and Raj Chari in 2010) were not competitive, receiving 10.1%, 18.4%, and 11.4% of the vote,

respectively. There has never been a minority candidate who won a contested election for RISD Trustee in the history of RISD.⁸

D. Electoral Context

Apart from the uncompetitive nature of Board elections, a second dimension of these races is their extraordinarily low turnout. Table 2 shows two turnout metrics for RISD elections (showing only years in which elections were actually held). The first (Presented) is the percentage of registered voters who appeared at the polling place. The second (Highest Vote) is the percentage of registered voters who recorded a preference for a Board candidate, based on the highest vote total recorded. The Highest Vote metric excludes voters who did not vote for any of the Board candidates, leaving that portion of the ballot blank.

Turnout exceeded 10% of registered voters only once (2013), and is more frequently below 6%. This is an order of magnitude lower than presidential election turnout (which I estimated to be 65% of registered voters in the RISD area in the 2012 presidential election). Every cycle, voters appear at the polls but do not record a preference in a Board race (the most undervotes occurred in 2013, when 21% of the people who appeared at the polls did not vote in the contested Board race).

Table 2		
Turnout in Board of Trustee Elections		
% of Registered Voters		
Year	Turnout (Presented)	Turnout (Highest Vote)
2017	9.3%	8.8%
2016	7.6%	6.0%
2014	5.3%	5.1%
2013 (runoff)	4.2%	3.8%
2013	12.4%	9.8%
2010	5.7%	4.5%
Average	7.4%	6.3%

Low turnout is reinforced by the split of the RISD boundaries across three municipalities. The RISD 3-year election cycle, in which some seats are elected every year, does not coincide with any of the three municipal election cycles. Dallas and Garland city officials (mayor and city council) serve four-year terms, with elections held the year after a presidential election (the two most recent were in 2013 and 2017). Richardson municipal elections are held every two years in

⁸ The only African American to serve on the Board was David Tyson, who did not face opposition in either 2004 or 2007.

an odd year (2017, 2015, 2013). A consequence is that turnout in Board elections varies depending on what other officers are up for election in the RISD area. In 2017, for example, turnout was 8.8% (as measured by Highest Vote), a comparatively high level driven in part by mayoral and city council elections in both Richardson and Dallas. In 2014, when there were no Dallas or Richardson municipal offices up for election, turnout was 5.1%, a more than 40% drop from 2017 levels. Such low turnout will be the norm in an off-year nonpartisan local election in a jurisdiction that does not coincide with any other municipality or legislative district cycle, and low propensity voters will be relegated to the sidelines.⁹

Low-turnout elections attract voters who are already the most engaged and committed, and the academic literature has for decades consistently identified race, income, and education as being strongly correlated with turnout likelihood (Burden et al., 2014).

Data in Table 3 shows how low turnout changes the demographic composition of the RISD electorate. The May 2017 CVAP – the eligible electorate – was 20.6% African American and 11.5% Hispanic (column 1). Among registered voters, these minority groups make up a smaller share: 15% African American and 8.9% Hispanic (column 2). Among voters in that election, representation of minority groups is smaller still: 7.5% of voters were African American, and 4.8% were Hispanic (column 3).

Column 4 shows turnout as a percentage of registered voters: 5.3% among African Americans, and 4.8% among Hispanics (overall turnout was 8.8%, and I estimate turnout among non-Hispanic white voters was approximately 12%). Column 5 shows turnout as a percentage of the eligible voting age population (including those not registered): 3.0% among African Americans and 2.9% among Hispanics. Minority representation among voters is roughly one-third to one-half of their overall representation in the eligible electorate, a disparity attributable to lower registration rates and lower turnout.

	Table 3				
	Changes in Minority Representation in Different Voting Populations				
	(1)	(2)	(3)	(4)	(5)
	% of CVAP in RISD	% of Registered Voters in RISD	% of Voters in May 2017 RISD Election	Turnout as % of Registered Population May 2017	Turnout as % of CVAP population
African Americans	20.6%	15.0%	7.5%	5.3%	3.0%
Hispanics	11.5%	8.9%	4.1%	4.8%	2.9%

⁹ One indicator of how turnout can dramatically affect results comes from the 2013 cycle. In May, as noted above, Rachel Chumney came in first in a 3-way race for Place 4, narrowly defeating incumbent Lanet Greenhaw 44.8%-41.6%. Turnout in that race was 9.8% of registered voters, with 11,659 votes cast. In the runoff held a month later, only 4,563 voters cast ballots (a turnout rate of 3.8% of registered voters, a drop off of more than 60 percent), producing a very different result: Greenhaw defeated Chumney, 76.9% to 24.1%, a 56-point swing in the margin of victory (from -3.3% to +52.8%).

This pattern is wholly consistent with the academic literature on turnout, which has for decades established that voter turnout among minority groups lags turnout among whites (Fraga 2016; Lopez and Barrera 2013), with the disparities greater in local and low-turnout elections:

[S]imple logic dictates that the *possible* extent of any skew produced by uneven turnout decreases as overall turnout levels increase. As detailed in [the] “law of dispersion,” the chances of skew are inversely proportional to overall electoral participation. If almost everybody turns out, there can be very little skew. If, however, only a small fraction of the population turns out, skew can be severe. Thus, if we are interested in revealing just how much turnout matters, we should not confine our research to national elections where turnout is relatively high. Bias could certainly exist at the national level where only about half of all eligible voters turn out but it could be that much worse at the local level where turnout averages half or less than half that of national elections (Hajnal and Trounstein 2005, 517).

E. Tests for Vote Dilution

The Voting Rights Act prohibits voting standards, practices or procedures that deny or abridge the right of members of protected classes to vote. Congress amended the Act in 1982 to include within this right the ability of protected classes to participate equally in the political process and “elect representatives of their choice,” and specified that discriminatory *intent* was not required to show a violation of the law; it is only necessary to show a discriminatory *effect*. The relevant language reads:

(a) No voting qualification or prerequisite to voting or standard, practice, or procedure shall be imposed or applied by any State or political subdivision in a manner which results in a denial or abridgement of the right of any citizen of the United States to vote on account of race or color, or in contravention of the guarantees set forth in section 1973 b(f)(2), as provided in subsection (b).

(b) A violation of subsection (a) is established if, based on the totality of circumstances, it is shown that the political processes leading to nomination or election in the State or political subdivision are not equally open to participation by members of a class of citizens protected by subsection (a) in that its members have less opportunity than other members of the electorate to participate in the political process and to elect representatives of their choice. The extent to which members of a protected class have been elected to office in the State or political subdivision is one circumstance which may be considered: Provided, that nothing in this section establishes a right to have members of a protected class elected in numbers equal to their proportion in the population.¹⁰

The Senate Judiciary Committee Report on the legislation identified a number of elements to be considered in analyzing whether minorities “are denied equal access to the political process” (more commonly known as the “Senate Factors”; United States Senate 1982, 27):

¹⁰ 42 U.S.C. § 1973 (1982).

1. the extent of any history of official discrimination in the state or political subdivision that touched the right of the members of the minority group to register, to vote, or otherwise to participate in the democratic process;
2. the extent to which voting in the elections of the state or political subdivision is racially polarized;
3. the extent to which the state or political subdivision has used unusually large election districts, majority vote requirements, anti-single shot provisions, or other voting practices or procedures that may enhance the opportunity for discrimination against the minority group;
4. if there is a candidate slating process, whether the members of the minority group have been denied access to that process;
5. the extent to which members of the minority group in the state or political subdivision bear the effects of discrimination in such areas as education, employment and health, which hinder their ability to participate effectively in the political process;
6. whether political campaigns have been characterized by overt or subtle racial appeals;
7. the extent to which members of the minority group have been elected to public office in the jurisdiction.

Additional factors that in some cases have had probative value as part of plaintiffs' evidence to establish a violation are: "whether there is a significant lack of responsiveness on the part of elected officials to the particularized needs of the members of the minority group, [and] whether the policy underlying the state or political subdivision's use of such voting qualification, prerequisite to voting, or standard, practice or procedure is tenuous" (United States Senate 1982, 28-29).

The report specifies that these factors are not exhaustive, and that "there is no requirement that any particular number of factors be proved, or that a majority of them point in one way or the other" to establish a violation. (United States Senate 1982, 29).

1. Factor 2: Racially Polarized Voting

Factor two addresses racially polarized voting as a cause of a protected class of voters being denied equal access to the political process. In *Thornburgh v. Gingles* 478 U.S. 30 (1985), the U.S. Supreme Court established a three-part test for determining whether a voting practice or procedure met this standard and diluted the voting power of a minority group:

- I. The minority group must be sufficiently large and geographically compact to constitute a majority in a single member district.
- II. Members of the minority group must be politically cohesive.
- III. White majorities must vote sufficiently as a bloc to enable it usually to defeat the minority's preferred candidate (478 U.S. 30,50- 51).

These are commonly referred to as the three "prongs" of the *Gingles* test. Prongs II and III form a test of whether the votes of members of a minority group are diluted via practices or structures that impair the group's ability to elect a representative of its choice. This test, along with the

other Senate Factors, form key elements of the “totality of circumstances” evaluation of discriminatory voting practices.

In evaluating the degree of racially polarized voting and racial bloc voting,¹¹ there are two empirical questions. First: do minority voters constitute a politically cohesive group? And second: do white voters usually vote as a bloc in a manner that prevents Hispanic or African American voters from electing representatives of their choice?

Such an analysis requires estimates of voting behavior in minority and white subpopulations. Because the secret ballot prevents direct observation of how individuals vote, voting behavior must be inferred from aggregate information using observable data about groups.¹² Knowing the composition of the electorate (an observable precinct level group characteristic through Census data or surname analysis of voters) and the election results (observable at the precinct level), it is possible to estimate the behavior of individuals in different demographic groups.

In the problem analyzed in this report, we need to know which candidates minority and white (non-minority) voters support, in order to reach conclusions about (1) whether minority voters are politically cohesive, and (2) whether white voters usually vote as a bloc in a manner that denies minority voters the ability to elect candidates of their choice.

In *Gingles*, the Supreme Court endorsed a technique known as ecological regression (also called Goodman Regression) that can produce accurate individual level estimates as long as certain assumptions about the data hold. More recent methods generate reliable estimates even when the assumptions necessary for Goodman regression are violated, and have become more common in voting rights analyses. The most common are based on King’s EI method and its extensions (King 1997; King, Rosen and Tanner, 1999; Rosen et al., 2001). These methods are widely used in the discipline, are recognized as reliable, and have been accepted as accurate ways of estimating the voting behavior of subgroups in the electorate.

The analysis here uses an R package, eiCompare, that calculates King EI, EI- $R \times C$ using the Rosen et al. method, and Goodman Regression estimates for racial bloc voting, allowing for comparison of the three results (Collingwood 2017; Collingwood et al., 2016). In most cases, the three techniques produce almost identical estimates of minority and white voting behavior (Grofman and Barreto 2009). The more recent methods tend to have the most reliable estimates in multi candidate races, have the smallest standard errors (signifying the most precise estimates), and are more robust to violations of the assumptions required for EI and Goodman regression to work reliably (Ferree 2004; de Benedictis-Kessner 2015).

¹¹ The two terms are similar, but not interchangeable. Racially polarized voting is defined as voters supporting candidates of their race (i.e., white voters supporting white candidates, and minority voters supporting minority candidates). Racial bloc voting is a stronger term that refers to cohesion among minorities combined with white voters voting as a bloc for white candidates in a manner that usually defeats the candidates supported by minority voters.

¹² In some cases, exit polls or other survey data can provide individual-level information about voting, but those are usually available only in high-level races and at geographies larger than counties.

For the May 2017 Board election, I relied on surname analysis and estimates of the race of actual voters, provided by demographer David Ely and based on the April 2018 Dallas County voter registration file. The file contains information for each registered voter as of that date, and includes a voter history. Voter surnames are used to identify Hispanic registrants, based on Census lists of Hispanic surnames. The number of African American registrants and voters is estimated using the demographics of precincts where individuals are registered.

Throughout the analysis, I identified different voter groups according the following definitions:

- Hispanic voters: classified either through Spanish surnames of voters casting ballots in an election, or by precinct-level Hispanic CVAP or VAP percentages.
- Non-Hispanic voters: classified as all voters who are not identified as Hispanic (includes African American voters)
- African American voters: classified by precinct-level CVAP or VAP percentages
- Minority voters: the aggregate totals of Hispanic and African American voters
- White voters: classified as precinct-level percentages of white CVAP or VAP

2 Selection of Races to Analyze

The elections I analyzed to determine whether racial cohesion exists among minority voters, and racial bloc voting exists among white voters, are the following:

- The May 2017 RISD Board election for Place 3
- The 2008 Democratic presidential primary
- The 2012 presidential election
- The 2018 Texas Democratic gubernatorial primary
- The 2018 Texas Democratic gubernatorial primary runoff

a. Endogenous Elections

In carrying out analyses of racially polarized voting, one typically begins with elections of the same type at issue in litigation (Trustee elections, in this instance). These “endogenous races” are useful in that they involve the same electoral context – office, turnout, timing, candidate incentives, etc. – that we seek to understand in estimating the voting behavior of different racial and ethnic groups. From there, the elections considered move on to other types (so called “exogenous races”) that are likely to show similar patterns. Patterns are clearest and most precise when there is a minority candidate running against a white (non-minority) candidate. But in RISD elections, there are no instances in the last ten years of competitive minority candidates who received a share of the vote high enough to generate conclusive estimates of bloc voting behavior. As noted above, since 2010 no minority candidate has received more than 18.4% of the vote, and in that time there have been only three minority candidates (two in 2010 and one in 2017). It is not possible to generate estimates from the 2010 election, as detailed registration, individual voter demographics, and voter history data do not exist, and even if it did exist the turnout was so low (4.5% of registered voters as measured by Highest Vote) as to likely render the results uninformative.

In May 2017, for example, the voter history data show that only 475 Hispanics cast ballots in the Place 3 election. The number of Hispanic voters in each precinct ranged from 0 (in 10 precincts) to a maximum of 26, with an average of 6.5 voters per precinct. Prado received an average of 14.5 votes per precinct, 10 or fewer votes in 30 precincts, and under 10% of the vote in 38 precincts (out of 74). Such a small number of voters and votes, along with a lack of variance in the vote share, makes inferences uncertain. Even if every Hispanic voter who cast his or her ballot voted for the Hispanic candidate (Prado), they would collectively constitute only about 4.5% of the total vote in that race.

It is still possible to generate estimates of cohesion using this data, although the results are likely to be uncertain and a lack of clear cohesion in the voter data does not prove it would not exist with a better known and more competitive candidate (one cannot easily measure preferences that are unexpressed). Estimates for white, non-minority voters – who comprise a much larger share of voters – will be more precise.

b. Exogenous Elections

In an electoral system that lacks competitive minority candidates, other elections will be informative as to the existence of cohesion and bloc voting (Clarke 2009, 66-68). Courts frequently rely on exogenous election data where, as here, a lack of minority candidates results in limited endogenous election data.¹³

I selected four exogenous races to analyze patterns of cohesion and racial bloc voting when an African American candidate ran: the 2008 Democratic presidential primary between Barack Obama and Hillary Clinton, the 2012 presidential election between Obama and Mitt Romney the 2018 Texas Democratic gubernatorial primary, and the 2018 Texas Democratic gubernatorial primary runoff. These have the advantage of providing robust data, high turnout, relatively large percentages of minority voters, high vote variance across all RISD precincts, and competitive races.

There are state or local elections involving minority and white candidates running, but they occurred in only a part of the RISD area and are uninformative about overall voting patterns in the District. For example, the Democratic primary for Dallas County Commissioner, District 1 involved two minority candidates (an African American and Hispanic candidate) and one white candidate. But the district included less than half of the RISD area, and only 1,570 votes were cast there, a turnout of 3% of registered voters. The data were insufficient to generate meaningful estimates; in some cases, the software did not even converge.

Additionally, the 2018 and 2012 Republican Senate primary (in which Ted Cruz ran) did not generate enough votes in precincts with high concentrations of Hispanic or African American voters to generate meaningful inferences. For example, the two precincts with the highest concentration of Hispanic CVAP in the RISD area were precinct 1036 (with 48.9%) and 1129 (43.3%). In 2018, there were 48 and three votes respectively cast there in the GOP Senate primary. In the precinct with the highest African American CVAP (1041) only two votes were

¹³ *Citizens for a Better Gretna v. City of Gretna* 834 F. 2d 496 (5th Cir., 1987). *League of United Latin American Citizens, Council No. 4434 v. Clements* 999 F. 2d 831 (5th Cir., 1993).

cast, fewer than the number of votes cast there in the 2017 RISD election (seven), and a turnout rate of 0.2% of registered voters.

3. Results

a. 2017 RISD Place 3 Election

The election pitted one Hispanic candidate, Ben Prado, against three white candidates. The results were:

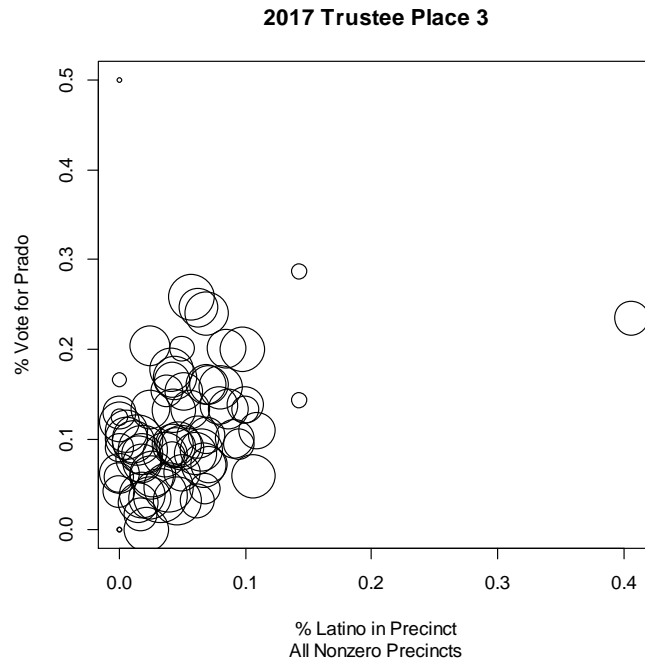
Table 4		
May 2017 RISD Place 3 Election		
Candidate	Votes	Percent
Karen Clardy	5,748	55.0%
Eric Eager	2,359	22.6%
Joseph Armstrong	1,298	12.4%
Ben Prado	1,055	10.1%

Turnout in this specific race was approximately 8.2% of registered voters.¹⁴

As noted above, Prado's small vote share and the small variance across precincts limits the inferences that can be drawn about cohesion, but provides leverage for determining whether racial bloc voting exists. The analysis for this election uses precinct vote totals for each candidate and estimates of the race of individual voters using surnames.

There is evidence that Hispanic voters were more supportive of Prado than they were other candidates. The following figure plots the percentage of votes that Prado received against the percentage of votes cast by Hispanics. Each circle represents one precinct, with the circle size proportional to the number of votes cast. With one exception – the circle at the right of the graph at roughly (0.4,0.2), representing precinct 1704 in Garland – no precinct has more than 15% Hispanic vote concentration and almost all are below 10%. Still, it is possible to discern a positive relationship between Hispanic concentration and support for Prado: as the percentage of Hispanic voters increases, so does the percentage of the vote Prado receives, even if it the number of Hispanic voters was not sufficient anywhere to push him above (or even close to) 50% of the vote.

¹⁴ This figure is lower than the turnout totals in Table 3, and is calculated using the number of voters who cast ballots in this contest.



Tables 5 shows estimates of Prado's support among Hispanic and non-Hispanic voters.

Table 5							
Ecological Inference Results							
May 2017 RISD Trustee Place 3 – Voter Surname Data							
Candidate		Hispanic Voters			Non-Hispanic		
		EI	EI RxC	Goodman	EI	EI RxC	Goodman
Prado	Vote %	60.3%	51.3%	49.9%	8.9%	9.4%	9.2%
	s.e.	23.4	15.3	17.7	1.2	1.2	7.5
Anglo Candidates	Vote %	38.0%	48.7%	50.1%	91.1%	90.6%	90.8%
	s.e.	23.4	15.5	17.7	1.2	1.2	7.5
Difference		22.3%	2.6%	-0.2%	-82.2%	-81.2%	-81.6%

Each cell number in the Vote % rows is the estimated percentage of voters who cast their ballot for either Prado or one of the three white candidates, using the three methods described above. The numbers below the bolded numbers are the standard errors of the estimates. The EI method shows that Hispanic voters broke 60.3%-38% for Prado (the numbers do not always sum to 100% because of the way that coefficients are estimated). Both the EI RxC and Goodman regression methods show a much closer division (51.3-48.7 and 49.9-40.1, respectively).

The precision of the estimates is reflected in the standard errors of each vote percentage (denoted in the "s.e." rows). To determine whether the differences in support for each candidate (or set of

candidates) are statistically significant, I used a heuristic rule: a difference is significant if it is larger than twice the standard errors of the estimates.¹⁵

The ecological inference methods show that Hispanic voters supported Prado by between 49.9% - 60.3% of the vote compared to Anglo candidates. However, even the largest margin, produced by the baseline EI method (60.3%-38.0%) is not statistically significant, given that the standard errors for both estimates (23.4%) are larger than the difference in vote percentage than the standard error of both estimates (22.3%). The large standard errors reflect the small number of Hispanic voters (475) and the low Hispanic concentrations in virtually every precinct (all but one below 15% of votes cast). Nevertheless, there is at least some evidence that Hispanic voters supported Prado disproportionately.

The estimates for the preferences of non-Hispanic voters (over 90% of whom are White) are much clearer. Non-Hispanic voters broke overwhelmingly against Prado, supporting Anglo candidates by more than a 90%-10%. All of the methods produce similar and statistically significant estimates.

While the small number of Hispanic voters prevents a conclusive statement about minority cohesion, the endogenous elections supports the existence of cohesion, and clearly supports the existence of white bloc voting.

b. 2008 Democratic presidential primary

In the 2008 Democratic presidential primary, Hillary Clinton and Barack Obama competed (with three other candidates who received a trivial share of the vote). The results in the RISD area were:

Table 6		
2008 Democratic Presidential Primary		
Candidate	Votes	Percent
Clinton	12,744	42.3%
Obama	17,230	57.2%
Others	131	0.4%

¹⁵ A heuristic is necessary, as it is not possible to directly calculate significance when the confidence intervals (or, more properly, credible intervals) around the coefficients are not distributed normally. I regarded the coefficients of support between candidates as significantly different if the difference between the two coefficients was greater than twice the standard errors of each coefficient. This is reflected in the formula that is used when standard errors are normally distributed. When that assumption holds, values of the normal statistic $Z =$

$$\frac{b_1 - b_2}{\sqrt{se_{b_1}^2 + se_{b_2}^2}}$$
 (where b is a coefficient and se_b the standard error that coefficient) greater than

1.96 signify statistical significance at the 0.05 level.

Turnout was approximately 26.7% of registered voters.

Obama's vote percentage in the RISD area was better than his statewide performance (Clinton won the statewide vote, 50.9%-47.4%). There is a strong relationship between the percentage of African American CVAP in a precinct and Obama's vote percentage:

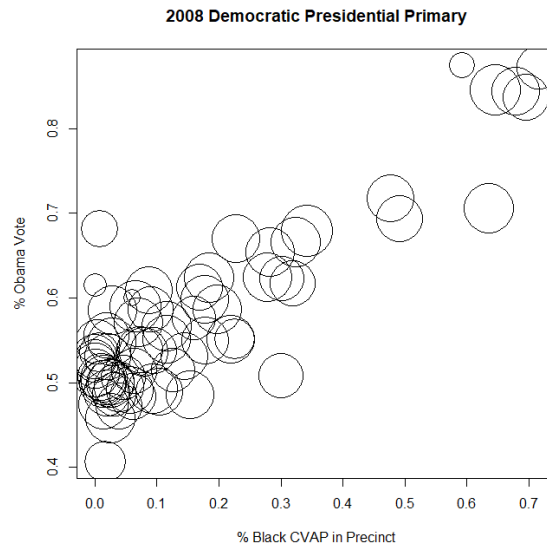


Table 7							
Ecological Inference Results							
2008 Democratic Presidential Primary- CVAP Data							
Candidate		African American			White		
		EI	El RxC	Goodman	El	El RxC	Goodman
Obama	Vote %	94.0%	95.7%	97.9%	50.8%	50.4%	52.0%
	s.e.	4.9	2.4	4.8	0.92	0.79	6.3
Clinton	Vote %	5.9%	4.3%	4.8%	49.1%	49.6%	48.0%
	s.e.	4.8	2.4	4.8	0.9	0.8	0.6
Difference		88.1%	91.4%	93.1%	1.7%	0.8%	4.0%

The result of the EI estimation appears in Table 7. It shows that African American Democratic voters overwhelmingly supported Obama, by margins of 94%-6% or greater. At the same time, white Democrats were evenly split between Obama and Clinton. Given that in 2012, very few African Americans were Republicans, the primary is a reasonable proxy for this group's voting pattern in a higher turnout election in which voters did not have party labels to differentiate among candidates on the ballot.¹⁶ Hispanics were supportive of Obama by closer margins (roughly 70%-30% over Clinton) indicating that Hispanic and African American voters share underlying preferences and voted as a coalition.

¹⁶ In the 2012 Cooperative Congressional Election Study, 2.6% of African Americans in Texas identified as Republican (Ansolabehere and Schaffner 2013).

c. 2012 presidential general election

In 2012, Barack Obama ran against Mitt Romney. The two-party vote in the RISD area is shown in Table 8:

Table 8 2012 Presidential Election		
Candidate	Votes	Percent
Obama	35,389	46.4%
Romney	40,926	53.6%

Turnout was approximately 65% of registered voters.

In RISD precincts, Obama outperformed his statewide vote percentage (which was 41.4%), but significantly underperformed Dallas County as a whole (where he received 57.8% of the vote).

There is a clear relationship between the share of a precinct made up of minority Citizen Voting Age population, and support for Obama. Notably, precincts in which minorities are less than half of the voting age population tended to support Romney. In the precincts with the highest concentration of minorities, support for Obama is nearly unanimous.

The EI results (Table 9) show indisputable evidence of both minority cohesion and racial bloc voting. Minority voters almost unanimously voted for Obama, with all method showing a 95%-5% split. Over three-quarters of white voters, in contrast, voted for Romney (with the estimates ranging from 75.9% to 78.7%). Despite the fact that minority groups supported Obama by a ratio of over 19-1, white bloc voting produced a district-wide victory for Romney.

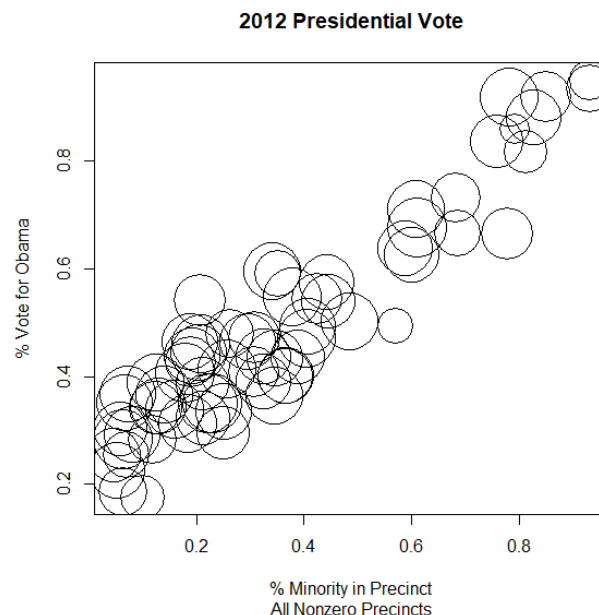


Table 9							
Ecological Inference Results							
2012 Presidential Election - CVAP Data							
Candidate		Minority			White		
		El	El RxC	Goodman	El	El RxC	Goodman
Obama	Vote %	94.8%	95.7%	95.2%	24.1%	22.7%	21.3%
	s.e.	3.6	2.2	6.3	2.4	1.4	6.2
Romney	Vote %	5.1%	4.3%	4.8%	75.9%	77.2%	78.7%
	s.e.	3.6	2.1	6.3	2.3	1.5	5.6
Difference		89.7%	91.4%	90.4%	-51.8%	-54.5%	-57.4%

d. 2018 Democratic Texas Gubernatorial Primary

Nine candidates ran for the Democratic Gubernatorial nomination in 2018. Dallas County Sheriff Lupe Valdez finished first statewide (though she did not win an outright majority) and in the RISD. The vote totals in the RISD area were:

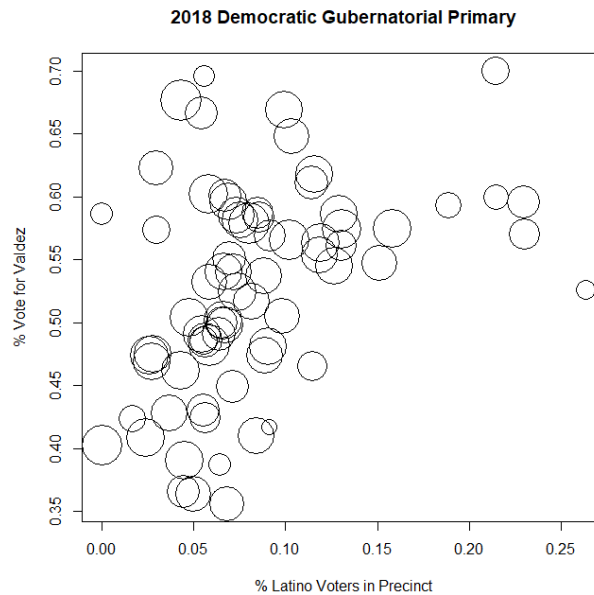
Table 10		
2018 Democratic Gubernatorial Primary		
Candidate	Votes	Percent
Lupe Valdez	8,300	54.8%
Andrew White	4,512	29.8%
Cedric Davis, Sr.	590	3.9%
Adrian Ocegueda	285	1.9%
5 others	1,454	9.6%

Turnout was approximately 10.4% of registered voters.¹⁷

The effects of higher turnout are apparent from the demographic composition of voters. Compared to the May 2017 Board of Trustees election, turnout more than doubled among Hispanic voters, to 9.4% compared to 4.1%. Hispanics also comprised a larger share of voters, increasing from 4.8% in May 2017 to 7.7% in this primary.

¹⁷ Valdez received 42.9% of the statewide vote, with White receiving 27.4%. Valdez won the runoff over White, 53.4%-46.7% statewide, and 65.4%-34.6% in Dallas County.

A graph of Valdez's vote share and the share of Hispanic voters in a precinct shows a strong relationship. Notably, precincts with a very low percentage of Hispanic voters (generally below 10%) frequently cast a majority of the vote for other candidates.



The results of the EI estimate (Table 11) show that Hispanic voters were strongly supportive of Valdez, voting for her nearly unanimously according to the EI method, and by nearly 9-1 in the RxC method. The Goodman regression for Hispanic voters demonstrates one of the problems with this method noted by King (1997,56-70, which is that it can give impossible results (a candidate cannot get over 100% or less than 0% of the vote).¹⁸

Table 11							
Ecological Inference Results							
2018 Democratic Gubernatorial Primary - Voter Surname Data							
Candidate		Hispanic			Non-Hispanic		
		EI	EI RxC	Goodman	EI	EI RxC	Goodman
Valdez	Vote %	94.4%	89.8%	108.7%	48.8%	49.2%	46.1%
	s.e.	8.4	8.3	20.4	0.8	1.3	33.5
Other Candidates	Vote %	1.2%	10.3%	-8.7%	51.5%	50.8%	53.9%
	s.e.	1.8	8.3	20.4	0.1	1.2	33.5
Difference		93.2%	79.5%	117.4%	-2.7%	-1.6%	-7.8%

¹⁸ Is noted in Table 10 a second Hispanic candidate, Adrian Ocegueda, received a small share of the overall vote (1.9%). Aggregating his and Valdez's votes do not affect the result of the ecological inference analysis..

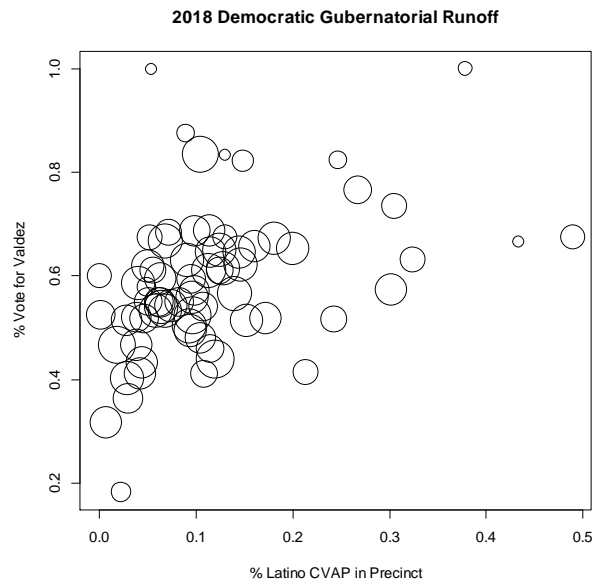
e. 2018 Democratic Texas Gubernatorial Primary Runoff

Because no candidate received 50% of the primary vote, the top two candidates (Valdez and White) proceeded to a runoff election. The results of the runoff in the RISD area were:

Table 12 2018 Democratic Gubernatorial Runoff		
Candidate	Votes	Percent
Lupe Valdez	4,910	56.4%
Andrew White	3,800	43.6%

Turnout was 6% of registered voters.

There is a strong relationship between the Hispanic CVAP percentage and support for Valdez (the graph shows Hispanic CVAP, as surname data were not available). As with the primary, precincts with very low Hispanic concentrations frequently cast a majority of the vote for White.



The EI estimates again show a nearly unanimous Hispanic vote for Valdez, and a relatively small majority among non-Hispanic voters. However, when white voters are broken out separately, the pattern becomes much clearer: minority voters remain strongly supportive of Valdez, with 80.1%-83.5% voting for her. White voters, in contrast, broke for Andrew White, with between 53.1% and 55.3% of the vote. Valdez also received considerable support among African Americans: in the precinct with the highest concentration of African American CVAP (precinct 1003, with 63.2%), Valdez received 71.1% of the vote, significantly greater than the estimated support she received among White voters (Table 14).

Table 13							
Ecological Inference Results							
2018 Democratic Gubernatorial Runoff - CVAP Data							
Candidate		Hispanic			Non-Hispanic		
		EI	EI RxC	Goodman	EI	EI RxC	Goodman
Valdez	Vote %	97.3%	92.0%	108.1%	54.1%	54.3%	57.5%
	s.e.	3.9	6.8	20.0	0.7	1.9	30.0
White	Vote %	1.1%	8.2%	-8.1%	46.3%	45.7%	42.5%
	s.e.	1.1	6.8	20.0	0.1	1.9	30.0
Difference		96.2%	83.8%	116.2%	7.8%	8.6%	15.0%

Table 14							
Ecological Inference Results							
2018 Democratic Gubernatorial Runoff - CVAP Data							
Candidate		Minority			White		
		EI	EI RxC	Goodman	EI	EI RxC	Goodman
Valdez	Vote %	80.1%	82.7%	83.5%	47.0%	44.7%	46.9%
	s.e.	9.3	3.4	9	5.6	2.3	8.9
White	Vote %	20.1%	17.3%	16.5%	53.1%	55.3%	53.1%
	s.e.	8.9	3.4	9.0	5.6	2.3	8.9
Difference		60.0%	65.4%	67.0%	-6.1%	-10.6%	-6.2%

f. Summary

In total, the elections analyzed in this section show clear patterns of minority group cohesion and racial bloc voting. The only race that does not show conclusive evidence of minority cohesion is the 2017 RISD Board of Trustees election, but that is a function of the lack of a competitive minority candidate and low voter turnout. Even then, both the EI method and EI RxC method indicated that a majority of Hispanic voters support Prado even if the results did not meet the threshold for statistical significance.

The 2012 presidential election showed clear evidence of both cohesion and racial bloc voting, in which African American voters strongly supported Obama, White voters support Romney, and Romney won a decisive majority in the RISD area. In the 2018 Gubernatorial runoff, minority voters supported Valdez by a 4-1 margin, and white voters supported White by a narrow majority that in this case was not large enough to offset the minority vote. In 2008, African American voters overwhelmingly supported Obama, while White voters were evenly divided between Obama and Clinton.

Democratic primaries, however, will understate the degree of white support for white, non-minority candidates (as evidenced by the difference between the 2008 Democratic primary and

the 2012 general election: in the former, White Democratic primary voters were evenly split between Obama and Clinton. In the latter, White voters support Romney by over three to one).

The inferences that I draw from this analysis are first, that minority voters will support minority candidates when offered a serious option; second, that white voters will generally support white, non-minority candidates, often by enormous margins; and most importantly, the data show that the only time minority voters are able elect their candidate of choice in a general election is when white voters are split or support the same candidate as minority voters. The power of white voters, when their preferences are strong, overwhelms the influence of minority voters.

4. Factor 3: At Large Elections

The at-large character of Board elections is another barrier to an effective minority vote, exacerbating the effects of lower minority voter turnout and white racial bloc voting.

The analysis is straightforward. A concentration of 20.6% African American and 11.5% Hispanic CVAP and in the RISD does not provide a meaningful opportunity to elect a candidate of choice in an at-large election. Differentials in registration and turnout rates reduce this representation (as shown in Table 3) to 15% of registrants and 7.5% of voters for African Americans, and to 8.9% of registrants and 4.1% of voters for Hispanics. African Americans and Hispanics comprise nearly a third of the eligible RISD voting age population (32.1%), but constitute less than one-eighth of voters (11.6%). The 2017 Board election data indicate that 475 voters with Hispanic surnames, and 877 probabilistically identified as African Americans cast ballots in that election. Combined, these 1,352 voters represent only 11.6% of all votes cast, and less than a quarter of the 5,748 votes the winner received. In 2017, even if *every* Black or Hispanic voter cast their ballot for the Hispanic candidate (Prado), his vote would not have been much higher than it was (10.1%).

Diluted at-large representation combined with the lack of competitive Board elections will discourage competitive minority candidates from emerging, a plausible reason why there have been so few who have run for Board office.¹⁹ Lacking the resources of better-connected or wealthier individuals, and with less access to contribution networks, potential minority candidates have little incentive or ability to assume the financial and time costs of running for office. To give one example of this disparity: the winner of the Place 3 election in May 2017, Karen Clardy, raised \$10,760, and reported 85 contributions to her campaign (not including a \$1,000 contribution from Board member Justin Bono, who ran unopposed for the Place 1 seat and made the contribution after Clardy's last filing had been submitted). Ben Prado, the Hispanic, minority candidate in that race, received a lone contribution (of \$50), with the remainder of his funding coming from either in-kind contributions or his personal funds.

At large elections, low turnout, and a lack of competitive minority candidates work together to magnify the electoral power of white voters and further dilute minority votes. With up to 90% or more of white voters opting for white candidates, and white voters outnumbering minority voters by more than 8-1, it is virtually impossible for minority voters to elect a candidate of choice unless it coincides with the preference of white voters. This discourages minority candidates

¹⁹ The "strategic candidate" model, in which potential candidates weight the costs and effort of running for office against the probability of success, is well established as an explanation for candidate emergence (Jacobson and Kernell 1981; Krebs 1999)

from emerging, thereby reinforcing the inability of minority voters to even register a meaningful preference for – much less elect – a candidate of their choice.

It is obvious that a district-based system for electing Board members changes this calculus. David Ely has drawn illustrative demonstration districts, in which each Board member would be elected in a single-member district of approximately 31,000 people. Using data from David Ely's demonstration district A, it is possible to create a district of 30,645, with 60.3% African American CVAP, 57.6% African American voter registration, and combined 66.9% Hispanic and African American registration. This more than quadruples the African American share of the Citizen Voting Age Population of registrants compared to the entire RISD (57.6% compared to 15%), and triples minority registration (from a combined 23.9% to 66.9%). Similarly, demonstration district B more than doubles the Hispanic share of CVAP, from 11.5% to 26.9% in the district, and increases the overall African American and Hispanic share of CVAP to 50.1%. District B also nearly doubles overall minority representation among registered voters from 23.9% RISD-wide to 43.4% in the district, and more than doubles Hispanic representation (from 8.9% to 21.9% of registered voters). Given the patterns of minority cohesion and racial bloc voting, a district-based system would indisputably and dramatically increase the likelihood that minority voters would have an opportunity to elect candidates of their choice and participate equally in the political process of Board elections.

As a notional exercise, I can demonstrate how a district-level system could change the vote totals from the current at large basis. To do this, I will simulate a district-level election for the 2012 presidential race, using the demographic characteristics of Ely's demonstration districts, turnout figures for different groups from the 2017 RISD Board election, and the vote support percentages in Table 9. This is not intended to be a formal prediction of what *would* happen. Rather, it indicates what *can* happen in a district with higher concentrations of minority populations, while incorporating turnout differentials among different demographic groups.

Ely's demonstration district A has the following characteristics among registrants:

	Table 15					
	Notional Outcome, Demonstration District A					
	1	2	3	4	5	6
Race/ Ethnicity	Registered Voters	Turnout (May 2017)	Obama Support (EI)	Romney Support (EI)	Obama Votes (1x2x3)	Romney Votes (1x2x4)
Latino	1,378	4.8%	94.8%	5.2%	63	3
Black	8,576	5.3%	94.8%	5.2%	431	24
White	4,924	12.0%	24.1%	75.9%	142	448

The result (which was 53.6%-46.2% for Romney RISD-wide) is now a 57.2%-42.8% Obama margin, a swing of over 10 points. Note that this calculation assumes the extremely low turnout observed in Board elections, with the correspondingly larger turnout disparities between white and minority voters. The better counterfactual comparison is not the 2012 presidential election

result, but the possible Board of Trustees election in that district, which is an outright majority compared to the 0%-18% vote share that minority candidates have received in the last 8 years.

A single-member district changes a clear at-large majority for the white-preferred candidate (Romney) to an even clearer victory for Obama, the candidate of choice among minority voters.

Demonstration district B has the following characteristics among registrants:

	Table 16 Notional Outcome, Demonstration District B					
	1	2	3	4	5	6
Race/ Ethnicity	Registered Voters	Turnout (May 2017)	Obama Support (EI)	Romney Support (EI)	Obama Votes (1x2x3)	Romney Votes (1x2x4)
Latino	2,242	4.8%	94.8%	5.2%	102	6
Black	2,195	5.3%	94.8%	5.2%	110	6
White	5,783	12.0%	24.1%	75.9%	167	527

In this district, there are fewer votes cast than demonstration district A, reflecting the higher number of Hispanic voters (who have lower turnout and registration rates than non-Hispanics). In this district, Obama receives 41.3% of the vote, slightly lower than his actual RISD-wide share in 2012. But this notional calculation has adjusted turnout downward to reflect levels in Board elections. Here, the appropriate comparison is Obama's vote share relative to Prado's vote share in the 2017 Board election (10.1%). A minority candidate's expected vote share in district B will be more than quadruple what it was on at at-large basis, and that is using vote totals for a clearly uncompetitive candidate (Prado). Even though the expected vote is less than a majority, it approaches the level where the election would be considered competitive. With a higher minority vote presence, competitive minority candidates would be more likely to emerge, making a competitive race plausible, if not likely.

What this exercise demonstrates is that districts with a higher percentage of eligible minority voters will produce better opportunities for minority groups to effectively participate in the political process, even in the presence of racially polarized and racial bloc voting.

5. Factor 5: Effects of Discrimination

Senate Factor 5 addresses "the extent to which members of the minority group in the state or political subdivision bear the effects of discrimination in such areas as education, employment and health, which hinder their ability to participate effectively in the political process."

There is no question that minority groups face socioeconomic disadvantages that can plausibly be traced to discriminatory practices. Table 17 shows data on income and poverty, health, and education in the RISD area using American Community Survey data. On every dimension, minority populations are disadvantaged compared to the white population.

African American and Hispanic individuals, households, and families have significantly lower income than whites in RISD, and are far less likely to have high incomes. Median family income in RISD tops \$110,000 for white families, while median African American and Hispanic

family incomes are one-third of that level (roughly \$37,000). White families and households are four to six times as likely to have high incomes (defined here as twice overall median income levels). Minorities are four times more likely to be poor as whites (27% over the previous 12 months compared to 7%), and are five to six times as likely to receive SNAP benefits. African American and Hispanic children in RISD are over six times as likely to be poor as their white counterparts (38% and 39% compared to 6%).

Table 17					
Socioeconomic Data, RISD Geographic Area					
2012-2016 American Community Survey					
Category	Measure	All	White	African American	Hispanic
Income and Poverty	Median Family Income	\$68,721	\$110,665	\$36,900	\$36,855
	Median Household Income	\$54,405	\$81,110	\$34,748	\$40,289
	% Households over \$100,000 Annual Income	28%	41%	10%	11%
	% Families over \$125,000 Annual Income	27%	43%	7%	9%
	% Poverty Status last 12 months	17%	7%	27%	27%
	% Households Receiving SNAP Benefits Past 12 Months	11%	4%	22%	19%
	% Poverty Status in last 12 Months, Children	26%	6%	39%	38%
	% VAP Poverty Status last 12 months	14%	7%	22%	21%
Health	% Disabled	7%	7%	11%	3%
	% Without Health Insurance (ages 18-64)	29%	12%	33%	57%
Education and Language	% Individuals Limited English (age 5 and over)	14%	2%	6%	41%
	% With Less Than HS Diploma	--	3%	11%	44%
	% With Bachelor's Degree or Higher	--	59%	21%	14%

Measures of health show disparities as well. Among adults age 18-64 (and less likely to be covered by Medicare or Medicaid), 12% of whites lack health insurance, compared to 33% of African Americans and 57% of Hispanics. African Americans are more likely to be disabled (11%) than whites (7%). Hispanics are less likely to be disabled (3%) a result consistent with other research and likely attributable to the fact that Hispanic populations are younger on average than other racial or ethnic groups (Martin 2007,84).

Educational attainment is similarly lower among minorities. About 11% of African Americans and 44% of Hispanics in RISD have less than a high school diploma, compared to 3% of whites (among those age 25 or older). Whites are three to four times as likely to have at least a Bachelor's degree than minorities (59% of whites, compared to 21% of African Americans and 14% of Hispanics), and are far less likely to have limited English proficiency (2%) than African Americans (6%) or Hispanics (44%).

There is simply no dispute that these socioeconomic disadvantages are reflected in a diminished ability to participate in the political process. Not only is voter turnout strongly correlated with income and education (Burden et al., 2014), so are other less common forms of political participation, from making campaign contributions to candidates running for office (Gimpel, Lee and Kaminski 2006; Francia et al. 2003). Table 4 demonstrates how moving from the eligible population, to voter registration, to voting in Board elections diminishes representation of minority groups. Socioeconomic status is a major factor in these disparities.

Similarly, there can be no real question that a long history of discrimination in education, housing, and voting has existed in the RISD jurisdiction; nor that those practices have played a role in creating and perpetuating these economic and educational disadvantages. Until the 1960s, the RISD had segregated public schools (Wilson 1998). From 1970 to 2013, the RISD was under a federal desegregation order; it was released from this order in 2013 after a federal judge concluded that the district had eliminated *de jure* segregation.²⁰ The largest African American concentration in the RISD area is in Hamilton Park, a neighborhood specifically created in the 1950's because a growing African American population in need of housing, was unable to move into white areas of the city (Wilson 1998, 10-32).

Texas was one of the last states to have a poll tax, until the Supreme Court declared the practice unconstitutional in 1966.²¹ Prior to *Shelby County v. Holder* 570 U.S. 2 (2013), Texas was covered by Section 5 of the Voting Rights Act. A federal court twice found that the state's 2011 voter ID law (SB 14) was enacted with the intent to discriminate against African American and Hispanic voters.²² The Fifth Circuit found that the legislature had amended the ID requirement to remedy flaws in the original law,²³ but those changes were made only after the original law had been enjoined by the court. Similarly, two three-judge federal courts held that a 2011 Texas

²⁰ *United States of America vs. Texas Education Agency*, 3:70-cv-4101-O (N.D. Texas, 2013). The U.S. Department of Justice opposed granting the RISD unitary status and ending the desegregation order.

²¹ *Harper v. Virginia Board of Elections* 383 U.S. 663 (1966).

²² *Vesey v. Perry*, 13-cv-00193 (S.D. Tex.), October 9, 2014; *Vesey v. Abbott*, 2:13-cv-193, April 10, 2017.

²³ *Vesey v. Abbott*, No.17-40884 (5th Cir.), April 27, 2018.

redistricting law was intended to discriminate against Hispanic voters.²⁴ Again, the Texas legislature enacted a new law once the original had been declared unconstitutional, and the latter version was upheld by the Supreme Court.²⁵

As Leal, Martinez-Ebers and Meier put it in their study of Hispanic representation on school boards:

Literacy tests, poll taxes, and simple intimidation were effective tools against the electoral participation of Latinos as well as African Americans and poor Anglos. These have largely passed from the political scene, but election laws originally adopted with discriminatory intent may still affect political representation.

6. Factor 7: Election of Minority Candidates to Public Office in RISD

The results for this factor are straightforward. There has been, as far as I have been able to determine, only one African American who has ever served on the RISD Board of Trustees (David Tyson), no Hispanic Board member ever, and no minority candidate who has ever won a contested election to the Board. Since 2010, there have been 63-seat-years on the Board (seven members per year over nine years). Over that span the Board has been 98.4% white (62/ 63 seat-years). There has not been a minority member of the Board since 2010.

The contrast between the Board composition and the demographic characteristics of the RISD and student population could hardly be more stark. The unanimously white Board of Trustees presides over a citizen voting age population that consists of 41% non-white minorities; and a student body that is more than 70% non-white, more than 25% limited English proficiency, and more than 50% economically disadvantaged.

V. Conclusions and Findings

The data are definitive. The timing and structure of the electoral system for RISD Board of Trustees elections has the effect of denying members of minority groups the opportunity to participate equally in the political process. The at-large character of Board elections dilutes the voting power of minority groups (especially African Americans) to the point where they lack sufficient numbers to elect candidates of their choice. Low turnout disproportionately depresses representation of African American and Hispanic voters, reducing their representation by almost two-thirds from their composition of the Citizen Voting Age Population. The lack of competitiveness of Board elections – to the point where over half of the time, elections are cancelled because no candidate has an opponent – results in a lack of competitive candidates, and minority candidates in particular. A minority candidate has never won a contested election to the Board, and since 2007 there has not been a competitive minority candidate for a Board seat. There is evidence of both minority cohesion and racial bloc voting, with minority voters strongly preferring minority candidates, and evidence of white bloc voting against minority candidates. African American and Hispanic voters tend to prefer the same candidates and vote as an electoral coalition. Members of minority groups face significant disadvantages in income, education, and health that hinder their ability to participate. Given the long history in the state of discriminatory

²⁴ *Texas v. Holder* No. 11-1303 (D.C. Cir.), August 28, 2012; *Perez v. Abbott*, SA-11-CV-360 (W.D. Tex.), May 2, 2017.

²⁵ *Abbott v. Perez* 585 U. S. ____ (2018).

government activity in both election administration and education, it is highly likely that the existing economic and political disadvantages are a legacy of that discrimination.

As an empirical matter, RISD Board elections satisfy all three prongs of the *Gingles* test: the existence of a minority group that is sufficiently large and compact to constitute a majority in a single member district; the existence of political cohesion among members of minority groups; and White bloc voting that usually denies minority voters the opportunity to elect a candidate of their choice.

Of all the factors I analyzed, the at-large nature of Board elections is the most significant. Demonstration district A constructed by Ely increases the African American citizen voting age population from 20.9% for the RISD as a whole to 60.3%, and the African American share of registered voters from 15.0% to 57.6%. Ely's district B increases the combined African American and Hispanic share of CVAP from 32.1% to 50.1%, the Hispanic share of CVAP from 11.5% to 26.9%, and the aggregate minority share of registered voters from 23.9% to 43.4%. These changes will, without any question, increase the ability of members of minority groups to effectively participate in the political process.

I conclude that the at-large nature of RISD elections dilutes the voting power of minority voters, prevents them from participating equally in the political process, and that a district-based system would enhance the opportunity of these groups to elect candidates of their choice.



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July 16, 2018

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Appendix A

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Education

Yale University, Department of Political Science, Ph.D., 1988.
Yale University, Department of Political Science, M.A., M.Phil., 1987.
University of California, San Diego, Department of Political Science, B.A., 1982.

Positions Held

University of Wisconsin, Madison. Department of Political Science.
Professor, July 2000-present.
Associate Professor, June 1996-June 2000.
Assistant Professor, August 1989-May 1996.
Fulbright-ANU Distinguished Chair in Political Science, Australian National University (Canberra, ACT), July-December 2006.
Director, Data and Computation Center, College of Letters and Science, University of Wisconsin-Madison, June 1996-September 2003
Consultant, The RAND Corporation, Washington DC, 1988-1994.
Contract Specialist (Civilian), Naval Air Systems Command, Washington D.C., 1985-1986.

Honors and Awards

American Political Science Association, State Politics and Policy Section. Award for best Journal Article Published in the *American Journal of Political Science* in 2014. Awarded for Burden, Canon, Mayer, and Moynihan, "Election Laws, Mobilization, and Turnout."
Robert H. Durr Award, from the Midwest Political Science Association, for Best Paper Applying Quantitative Methods to a Substantive Problem Presented at the 2013 Meeting. Awarded for Burden, Canon, Mayer, and Moynihan, "Election Laws and Partisan Gains."
Leon Epstein Faculty Fellow, College of Letters and Science, 2012-2015
UW Housing Honored Instructor Award, 2012, 2014, 2017, 2018
Recipient, Jerry J. and Mary M. Cotter Award, College of Letters and Science, 2011-2012
Alliant Underkofler Excellence in Teaching Award, University of Wisconsin System, 2006
Pi Sigma Alpha Teaching Award, Fall 2006
Vilas Associate, 2003-2004, University of Wisconsin-Madison Graduate School.
2002 Neustadt Award. Awarded by the Presidency Research Group of the American Political Science Association, for the best book published on the American presidency in 2001. Awarded for *With the Stroke of a Pen: Executive Orders and Presidential Power*.
Lilly Teaching Fellow, University of Wisconsin-Madison, 1993-1994.
Interfraternity Council award for Outstanding Teaching, University of Wisconsin-Madison, 1993.
Selected as one of the 100 best professors at University of Wisconsin-Madison, Wisconsin Student Association, March 1992.
Olin Dissertation Fellow, Center for International Affairs, Harvard University, 1987-1988

Service as an Expert Witness

League of Women Voters of Michigan, et al. v. Johnson, No. 2:17-cv-14148-DPH-SDD (S.D. Mich.), redistricting (2018).

One Wisconsin Institute, Inc., et al. v. Nichol, et al., No. 3:15- CV-324 (W.D. Wis.), voting rights (2016).

Whitford et al. v. Gill et al., No. 15-CV-421-bbc (W.D. Wis.), redistricting (2016).

Milwaukee NAACP et al. v. Scott Walker et. al, No. 11-CV-5492 (Dane County Circuit Court), photo-ID (2012).

Baldus et al. v. Brennan et al., No. 11-CV-562 (E.D. Wis.), redistricting, voting rights (2012).

County of Kenosha v. City of Kenosha, No. 22-CV-1813 (Kenosha County Circuit Court) municipal redistricting (2011).

McComish et al. v Brewer et al., No. 02-CV-1550 (D. Ariz), campaign finance (2009).

Baumgart et al. v. Wendelberger et al. No 01-CV-121 (E.D. Wis.), redistricting (2002).

Grants and Research Awards

“Analyzing Nonvoting and the Student Voting Experience in Wisconsin.” Dane County (WI) Clerk, \$44,157. November 2016-December 2017. Additional support (\$30,000) provided by the Office of the Chancellor, UW-Madison.

Campaign Finance Task Force, Stanford University and New York University, \$36,585. September 2016-August 2017.

Participant and Board Member, 2016 White House Transition Project, PIs Martha Joynt Kumar (Towson State University) and Terry Sullivan (University of North Carolina-Chapel Hill).

“How do You Know? The Structure of Presidential Advising and Error Correction in the White House.” Graduate School Research Committee, University of Wisconsin, \$18,941. July 1, 2015-June 30, 2016.

“Study and Recommendations for the Government Accountability Board Chief Inspectors’ Statements and Election Incident Report Logs.” \$43,234. Co-PI. With Barry C. Burden (PI), David T. Canon (co-PI), and Donald Moynihan (co-PI). October 2011-May 2012.

“Public Funding in Connecticut Legislative Elections.” Open Society Institute. September 2009-December 2010. \$55,000.

“Early Voting and Same Day Registration in Wisconsin and Beyond.” Co-PI. October 2008-September 2009. Pew Charitable Trusts. \$49,400. With Barry C. Burden (PI), David T. Canon (Co-PI), Kevin J. Kennedy (Co-PI), and Donald P. Moynihan (Co-PI).

City of Madison, Blue Ribbon Commission on Clean Elections. Joyce Foundation, Chicago, IL. \$16,188. January-July 2008.

“Wisconsin Campaign Finance Project: Public Funding in Connecticut State Legislative Elections.” JEHT Foundation, New York, NY. \$84,735. November 2006-November 2007.

“Does Public Election Funding Change Public Policy? Evaluating the State of Knowledge.” JEHT Foundation, New York, NY. \$42,291. October 2005-April 2006.

“Wisconsin Campaign Finance Project: Disseminating Data to the Academic, Reform, and Policy Communities.” Joyce Foundation, Chicago, IL. \$20,900. September 2005- August 2006.

“Enhancing Electoral Competition: Do Public Funding Programs for State and Local Elections Work?” Smith Richardson Foundation, Westport, CT. \$129,611. December 2002-June 2005

WebWorks Grant (implementation of web-based instructional technologies), Division of Information Technology, UW-Madison, \$1,000. November 1999.

“Issue Advocacy in Wisconsin during the 1998 Election.” Joyce Foundation, Chicago, IL. \$15,499. April 1999.

Instructional Technology in the Multimedia Environment (IN-TIME) grant, Learning Support Services, University of Wisconsin. \$5,000. March 1997.

“Public Financing and Electoral Competitiveness in the Minnesota State Legislature.” Citizens’ Research Foundation, Los Angeles, CA, \$2,000. May-November 1996.

“The Reach of Presidential Power: Policy Making Through Executive Orders.” National Science Foundation (SBR-9511444), \$60,004. September 1, 1995-August 31, 1998. Graduate School Research Committee, University of Wisconsin, \$21,965. July 1, 1995-August 31, 1995. Additional support provided by the Gerald R. Ford Library Foundation, the Eisenhower World Affairs Institute, and the Harry S. Truman Library Foundation.

The Future of the Combat Aircraft Industrial Base.” Changing Security Environment Project, John M. Olin Institute for Strategic Studies, Harvard University (with Ethan B. Kapstein). June 1993-January 1995. \$15,000.

Hilldale Student Faculty Research Grant, College of Letters and Sciences, University of Wisconsin (with John M. Wood). 1992. Amount: \$1,000 (\$3,000 award to student)

“Electoral Cycles in Federal Government Prime Contract Awards” March 1992 – February 1995. National Science Foundation (SES-9121931), the Graduate School Research Committee at the University of Wisconsin, and the MacArthur Foundation. Amounts: National Science Foundation, \$74,216; Graduate School Research Committee: \$2,600; MacArthur Foundation, \$2,500

C-SPAN In the Classroom Faculty Development Grant, 1991. \$500

Professional and Public Service

Education and Social and Behavioral Sciences Institutional Review Board, 2008-2014. Acting Chair, Summer 2011. Chair, May 2012- June 2014.

Participant, U.S. Public Speaker Grant Program. United States Department of State (nationwide speaking tour in Australia, May 11-June 2, 2012).

Expert Consultant, Voces de la Frontera. Milwaukee Aldermanic redistricting, (2011).

Expert Consultant, Prosser for Supreme Court. Wisconsin Supreme Court election recount (2011).

Chair, Blue Ribbon Commission on Clean Elections (Madison), August 2007-April 2011.

Consultant, Consulate of the Government of Japan (Chicago) on state politics in Illinois, Indiana, Minnesota, and Wisconsin, 2006-2011.

Section head, Presidency Studies, 2006 Annual Meeting of the American Political Science Association.

Co-Chair, Committee on Redistricting, Supreme Court of Wisconsin, November 2003-December 2009.

Section Head, Presidency and Executive Politics, 2004 Annual Meeting of the Midwest Political Science Association, Chicago, IL.

Presidency Research Group (organized section of the American Political Science Association) Board, September 2002-present.

Book Review Editor, *Congress and the Presidency*, 2001-2006.

Editorial Board, *American Political Science Review*, September 2004- September 2007.

Consultant, Governor’s Blue Ribbon Commission on Campaign Finance Reform. State of Wisconsin. 1997.

PUBLICATIONS

Books

Presidential Leadership: Politics and Policymaking, 10th edition. Lanham, MD: Rowman and Littlefield, 2018. With George C. Edwards, III, and Stephen J. Wayne.

The 2016 Presidential Elections: The Causes and Consequences of an Electoral Earthquake. Lanham, MD: Lexington Press, 2017. Co-edited with Amnon Cavari and Richard J. Powell.

The Enduring Debate: Classic and Contemporary Readings in American Government. 8th ed. New York: W.W. Norton & Co. 2017. Co-edited with David T. Canon and John Coleman. Previous editions 1st (1997), 2nd (2000), 3rd (2002), 4th (2006), 5th (2009), 6th (2011), 7th (2013).

Faultlines: Readings in American Government, 5th ed. New York: W.W. Norton & Co. 2017. Co-edited with David T. Canon and John Coleman. Previous editions 1st (2004), 2nd (2007), 3rd

(2011), 4th (2013).

The 2012 Presidential Election: Forecasts, Outcomes, and Consequences. Lanham, MD: Rowman and Littlefield, 2014. Co-edited with Amnon Cavari and Richard J. Powell.

Readings in American Government, 7th edition. New York: W.W. Norton & Co. 2002. Co-edited with Theodore J. Lowi, Benjamin Ginsberg, David T. Canon, and John Coleman). Previous editions 4th (1996), 5th (1998), 6th (2000).

With the Stroke of a Pen: Executive Orders and Presidential Power. Princeton, NJ: Princeton University Press. 2001. Winner of the 2002 Neustadt Award from the Presidency Studies Group of the American Political Science Association, for the Best Book on the Presidency Published in 2001.

The Dysfunctional Congress? The Individual Roots of an Institutional Dilemma. Boulder, CO: Westview Press. 1999. With David T. Canon.

The Political Economy of Defense Contracting. New Haven: Yale University Press. 1991.

Monographs

2008 Election Data Collection Grant Program: Wisconsin Evaluation Report. Report to the Wisconsin Government Accountability Board, September 2009. With Barry C. Burden, David T. Canon, Stéphane Lavertu, and Donald P. Moynihan.

Issue Advocacy in Wisconsin: Analysis of the 1998 Elections and A Proposal for Enhanced Disclosure. September 1999.

Public Financing and Electoral Competition in Minnesota and Wisconsin. Citizens' Research Foundation, April 1998 .

Campaign Finance Reform in the States. Report prepared for the Governor's Blue Ribbon Commission on Campaign Finance Reform (State of Wisconsin). February 1998. Portions reprinted in Anthony Corrado, Thomas E. Mann, Daniel Ortiz, Trevor Potter, and Frank J. Sorauf, ed., *Campaign Finance Reform: A Sourcebook*. Washington, D.C.: Brookings Institution, 1997.

"Does Public Financing of Campaigns Work?" *Trends in Campaign Financing*. Occasional Paper Series, Citizens' Research Foundation, Los Angeles, CA. 1996. With John M. Wood.

The Development of the Advanced Medium Range Air-to-Air Missile: A Case Study of Risk and Reward in Weapon System Acquisition. N-3620-AF. Santa Monica: RAND Corporation. 1993.

Barriers to Managing Risk in Large Scale Weapons System Development Programs. N-4624-AF. Santa Monica: RAND Corporation. 1993. With Thomas K. Glennan, Jr., Susan J. Bodilly, Frank Camm, and Timothy J. Webb.

Articles

"Learning from Recounts." *Election Law Journal* (forthcoming 2018). With Stephen Ansolabehere, Barry C. Burden, and Charles Stewart III.

"The Complicated Partisan Effects of State Election Laws." *Political Research Quarterly* 70:549-563 (No. 3, September 2017). With Barry C. Burden, David T. Canon, and Donald P. Moynihan.

"What Happens at the Polling Place: Using Administrative Data to Look Inside Elections." *Public Administration Review* 77:354-364 (No. 3, May/June 2017). With Barry C. Burden, David T. Canon, Donald P. Moynihan, and Jacob R. Neihsel.

"Alien Abduction, and Voter Impersonation in the 2012 U.S. General Election Evidence from a Survey List Experiment." *Election Law Journal* 13:460-475 No.4, December 2014). With John S. Ahlquist and Simon Jackman.

"Election Laws, Mobilization, and Turnout: The Unanticipated Consequences of Election Reform." *American Journal of Political Science*, 58:95-109 (No. 1, January 2014). With Barry C. Burden, David T. Canon, and Donald P. Moynihan. Winner of the State Politics and Politics Section of

- the American Political Science Association Award for the best article published in the *AJPS* in 2014.
- “Executive Power in the Obama Administration and the Decision to Seek Congressional Authorization for a Military Attack Against Syria: Implications for Theories of Unilateral Action.” *Utah Law Review* 2014:821-841 (No. 4).
- “Public Election Funding: An Assessment of What We Would Like to Know.” *The Forum* 11:365-485 (No. 3, 2013).
- “Selection Method, Partisanship, and the Administration of Elections.” *American Politics Research* 41:903-936 (No. 6, November 2013). With Barry C. Burden, David T. Canon, Stéphane Lavertu, and Donald Moynihan.
- “The Effect of Administrative Burden on Bureaucratic Perception of Policies: Evidence from Election Administration.” *Public Administration Review* 72:741-451 (No. 5, September/October 2012). With Barry C. Burden, David T. Canon, and Donald Moynihan.
- “Early Voting and Election Day Registration in the Trenches: Local Officials’ Perceptions of Election Reform.” *Election Law Journal* 10:89-102 (No. 2, 2011). With Barry C. Burden, David T. Canon, and Donald Moynihan.
- “Is Political Science Relevant? Ask an Expert Witness,” *The Forum*: Vol. 8, No. 3, Article 6 (2010).
- “Thoughts on the Revolution in Presidency Studies,” *Presidential Studies Quarterly* 39 (no. 4, December 2009).
- “Does Australia Have a Constitution? Part I – Powers: A Constitution Without Constitutionalism.” *UCLA Pacific Basin Law Journal* 25:228-264 (No. 2, Spring 2008). With Howard Schweber.
- “Does Australia Have a Constitution? Part II: The Rights Constitution.” *UCLA Pacific Basin Law Journal* 25:265-355 (No. 2, Spring 2008). With Howard Schweber.
- “Public Election Funding, Competition, and Candidate Gender.” *PS: Political Science and Politics* XL:661-667 (No. 4, October 2007). With Timothy Werner.
- “Do Public Funding Programs Enhance Electoral Competition?” In Michael P. McDonald and John Samples, eds., *The Marketplace of Democracy: Electoral Competition and American Politics* (Washington, DC: Brookings Institution Press, 2006). With Timothy Werner and Amanda Williams. Excerpted in Daniel H. Lowenstein, Richard L. Hasen, and Daniel P. Tokaji, *Election Law: Cases and Materials*. Durham, NC: Carolina Academic Press, 2008.
- “The Last 100 Days.” *Presidential Studies Quarterly* 35:533-553 (No. 3, September 2005). With William Howell.
- “Political Reality and Unforeseen Consequences: Why Campaign Finance Reform is Too Important To Be Left To The Lawyers,” *University of Richmond Law Review* 37:1069-1110 (No. 4, May 2003).
- “Unilateral Presidential Powers: Significant Executive Orders, 1949-1999.” *Presidential Studies Quarterly* 32:367-386 (No. 2, June 2002). With Kevin Price.
- “Answering Ayres: Requiring Campaign Contributors to Remain Anonymous Would Not Resolve Corruption Concerns.” *Regulation* 24:24-29 (No. 4, Winter 2001).
- “Student Attitudes Toward Instructional Technology in the Large Introductory US Government Course.” *PS: Political Science and Politics* 33:597-604 (No. 3 September 2000). With John Coleman.
- “The Institutionalization of Power.” In Robert Y. Shapiro, Martha Joynt Kumar, and Lawrence R. Jacobs, eds. *Presidential Power: Forging the Presidency for the 21st Century*. New York: Columbia University Press, 2000. With Thomas J. Weko.
- “The Limits of Delegation – the Rise and Fall of BRAC.” *Regulation* 22:32-38 (No. 3, October 1999).
- “Executive Orders and Presidential Power.” *The Journal of Politics* 61:445-466 (No.2, May 1999).
- “Bringing Politics Back In: Defense Policy and the Theoretical Study of Institutions and Processes.” *Public Administration Review* 56:180-190 (1996). With Anne Khademian.
- “Closing Military Bases (Finally): Solving Collective Dilemmas Through Delegation.” *Legislative*

- Studies Quarterly*, 20:393-414 (No. 3, August 1995).
- “Electoral Cycles in Federal Government Prime Contract Awards: State-Level Evidence from the 1988 and 1992 Presidential Elections.” *American Journal of Political Science* 40:162-185 (No. 1, February 1995).
- “The Impact of Public Financing on Electoral Competitiveness: Evidence from Wisconsin, 1964-1990.” *Legislative Studies Quarterly* 20:69-88 (No. 1, February 1995). With John M. Wood.
- “Policy Disputes as a Source of Administrative Controls: Congressional Micromanagement of the Department of Defense.” *Public Administration Review* 53:293-302 (No. 4, July-August 1993).
- “Combat Aircraft Production in the United States, 1950-2000: Maintaining Industry Capability in an Era of Shrinking Budgets.” *Defense Analysis* 9:159-169 (No. 2, 1993).

Book Chapters

- “Is President Trump Conventionally Disruptive, or Unconventionally Destructive?” In *The 2016 Presidential Elections: The Causes and Consequences of an Electoral Earthquake*. Lanham, MD: Lexington Press, 2017. Co-edited with Amon Cavari and Richard J. Powell.
- “Lessons of Defeat: Republican Party Responses to the 2012 Presidential Election. In Amnon Cavari, Richard J. Powell, and Kenneth R. Mayer, eds. *The 2012 Presidential Election: Forecasts, Outcomes, and Consequences*. Lanham, MD: Rowman and Littlefield. 2014.
- “Unilateral Action.” George C. Edwards, III, and William G. Howell, *Oxford Handbook of the American Presidency* (New York: Oxford University Press, 2009).
- “Executive Orders,” in Joseph Bessette and Jeffrey Tulis, *The Constitutional Presidency*. Baltimore: Johns Hopkins University Press, 2009.
- “Hey, Wait a Minute: The Assumptions Behind the Case for Campaign Finance Reform.” In Gerald C. Lubenow, ed., *A User’s Guide to Campaign Finance Reform*. Lanham, MD: Rowman & Littlefield, 2001.
- “Everything You Thought You Knew About Impeachment Was Wrong.” In Leonard V. Kaplan and Beverly I. Moran, ed., *Aftermath: The Clinton Impeachment and the Presidency in the Age of Political Spectacle*. New York: New York University Press. 2001. With David T. Canon.
- “Congressional-DoD Relations After the Cold War: The Politics of Uncertainty.” In *Downsizing Defense*, Ethan Kapstein ed. Washington DC: Congressional Quarterly Press. 1993.
- “Elections, Business Cycles, and the Timing of Defense Contract Awards in the United States.” In Alex Mintz, ed. *The Political Economy of Military Spending*. London: Routledge. 1991.
- “Patterns of Congressional Influence In Defense Contracting.” In Robert Higgs, ed., *Arms, Politics, and the Economy: Contemporary and Historical Perspectives*. New York: Holmes and Meier. 1990.

Other

- “Campaign Finance: Some Basics.” Prepared for the Bauer-Ginsberg Campaign Finance Task Force, Stanford University. September 2017. With Elizabeth M. Sawyer.
- “The Wisconsin Recount May Have a Surprise in Store after All.” *The Monkey Cage* (Washington Post), December 5, 2016. With Stephen Ansolabehere, Barry C. Burden, and Charles Stewart, III.
- Review of Jason K. Dempsey, *Our Army: Soldiers, Politicians, and American Civil-Military Relations*. *The Forum* 9 (No. 3, 2011).
- “Voting Early, but Not Often.” *New York Times*, October 25, 2010. With Barry C. Burden.
- Review of John Samples, *The Fallacy of Campaign Finance Reform* and Raymond J. La Raja, *Small Change: Money, Political Parties, and Campaign Finance Reform*. *The Forum* 6 (No. 1, 2008).
- Review Essay, *Executing the Constitution: Putting the President Back Into the Constitution*, Christopher S. Kelley, ed.; *Presidents in Culture: The Meaning of Presidential Communication*, David Michael Ryfe; *Executive Orders and the Modern Presidency: Legislating from the Oval*

- Office*, Adam L. Warber. In *Perspective on Politics* 5:635-637 (No. 3, September 2007).
- "The Base Realignment and Closure Process: Is It Possible to Make Rational Policy?" Brademas Center for the Study of Congress, New York University. 2007.
- "Controlling Executive Authority in a Constitutional System" (comparative analysis of executive power in the U.S. and Australia), manuscript, February 2007.
- "Campaigns, Elections, and Campaign Finance Reform." *Focus on Law Studies*, XXI, No. 2 (Spring 2006). American Bar Association, Division for Public Education.
- "Review Essay: Assessing The 2000 Presidential Election – Judicial and Social Science Perspectives." *Congress and the Presidency* 29: 91-98 (No. 1, Spring 2002).
- Issue Briefs (Midterm Elections, Homeland Security; Foreign Affairs and Defense Policy; Education; Budget and Economy; Entitlement Reform) *2006 Reporter's Source Book*. Project Vote Smart. 2006. With Meghan Condon.
- "Sunlight as the Best Disinfectant: Campaign Finance in Australia." Democratic Audit of Australia, Australian National University. October 2006.
- "Return to the Norm," *Brisbane Courier-Mail*, November 10, 2006.
- "The Return of the King? Presidential Power and the Law," *PRG Report* XXVI, No. 2 (Spring 2004).
- Issue Briefs (Campaign Finance Reform, Homeland Security; Foreign Affairs and Defense Policy; Education; Budget and Economy; Entitlement Reform), *2004 Reporter's Source Book*. Project Vote Smart. 2004. With Patricia Strach and Arnold Shober.
- "Where's That Crystal Ball When You Need It? Finicky Voters and Creaky Campaigns Made for a Surprise Electoral Season. And the Fun's Just Begun." *Madison Magazine*. April 2002.
- "Capitol Overkill." *Madison Magazine*, July 2002.
- Issue Briefs (Homeland Security; Foreign Affairs and Defense Policy; Education; Economy, Budget and Taxes; Social Welfare Policy), *2002 Reporter's Source Book*. Project Vote Smart. 2002. With Patricia Strach and Paul Manna.
- "Presidential Emergency Powers." *Oxford Analytica Daily Brief*. December 18, 2001.
- "An Analysis of the Issue of Issue Ads." *Wisconsin State Journal*, November 7, 1999.
- "Background of Issue Ad Controversy." *Wisconsin State Journal*, November 7, 1999.
- "Eliminating Public Funding Reduces Election Competition." *Wisconsin State Journal*, June 27, 1999.
- Review of *Executive Privilege: The Dilemma of Secrecy and Democratic Accountability*, by Mark J. Rozell. *Congress and the Presidency* 24 (No. 1, 1997).
- "Like Marriage, New Presidency Starts In Hope." *Wisconsin State Journal*. March 31, 1996.
- Review of *The Tyranny of the Majority: Fundamental Fairness in Representative Democracy*, by Lani Guinier. *Congress and the Presidency* 21: 149-151 (No. 2, 1994).
- Review of *The Best Defense: Policy Alternatives for U.S. Nuclear Security From the 1950s to the 1990s*, by David Goldfischer. *Science, Technology, and Environmental Politics Newsletter* 6 (1994).
- Review of *The Strategic Defense Initiative*, by Edward Reiss. *American Political Science Review* 87:1061-1062 (No. 4, December 1993).
- Review of *The Political Economy of Defense: Issues and Perspectives*, Andrew L. Ross ed. *Armed Forces and Society* 19:460-462 (No. 3, April 1993)
- Review of *Space Weapons and the Strategic Defense Initiative*, by Crockett Grabbe. *Annals of the American Academy of Political and Social Science* 527: 193-194 (May 1993).
- "Limits Wouldn't Solve the Problem." *Wisconsin State Journal*, November 5, 1992. With David T. Canon.
- "Convention Ceded Middle Ground." *Wisconsin State Journal*, August 23, 1992.
- "CBS Economy Poll Meaningless." *Wisconsin State Journal*, February 3, 1992.
- "It's a Matter of Character: Pentagon Doesn't Need New Laws, it Needs Good People." *Los Angeles Times*, July 8, 1988.

Conference Papers

- “Voter Identification and Nonvoting in Wisconsin – Evidence from the 2016 Election.” Presented at the 2018 Annual Meeting of the Midwest Political Science Association, Chicago, IL April 5-8, 2018. With Michael G. DeCrescenzo.
- “Learning from Recounts.” Presented at the Workshop on Electoral Integrity, San Francisco, CA, August 30, 2017, and at the 2017 Annual Meeting of the American Political Science Association, San Francisco, CA, August 31-September 3, 2017. With Stephen Ansolabehere, Barry C. Burden, and Charles Stewart, III.
- “What Happens at the Polling Place: Using Administrative Data to Understand Irregularities at the Polls.” Conference on New Research on Election Administration and Reform, Massachusetts Institute of Technology, Cambridge, MA, June 8, 2015. With Barry C. Burden, David T. Canon, Donald P. Moynihan, and Jake R. Neihsel.
- “Election Laws and Partisan Gains: What are the Effects of Early Voting and Same Day Registration on the Parties' Vote Shares.” 2013 Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 11-14, 2013. Winner of the Robert H. Durr Award.
- “The Effect of Public Funding on Electoral Competition: Evidence from the 2008 and 2010 Cycles.” Annual Meeting of the American Political Science Association, Seattle, WA, September 1-4, 2011. With Amnon Cavari.
- “What Happens at the Polling Place: A Preliminary Analysis in the November 2008 General Election.” Annual Meeting of the American Political Science Association, Seattle, WA, September 1-4, 2011. With Barry C. Burden, David T. Canon, Donald P. Moynihan, and Jake R. Neihsel.
- “Election Laws, Mobilization, and Turnout: The Unanticipated Consequences of Election Reform.” 2010 Annual Meeting of the American Political Science Association, Washington, DC, September 2-5, 2010. With Barry C. Burden, David T. Canon, Stéphane Lavertu and Donald P. Moynihan.
- “Selection Methods, Partisanship, and the Administration of Elections. Annual Meeting of the Midwest Political Science Association, Chicago, IL, April 22-25, 2010. Revised version presented at the Annual Meeting of the European Political Science Association, June 16-19, 2011, Dublin, Ireland. With Barry C. Burden, David T. Canon, Stéphane Lavertu and Donald P. Moynihan.
- “The Effects and Costs of Early Voting, Election Day Registration, and Same Day Registration in the 2008 Elections.” Annual Meeting of the American Political Science Association, Toronto, Canada, September 3-5, 2009. With Barry C. Burden, David T. Canon, and Donald P. Moynihan.
- “Comparative Election Administration: Can We Learn Anything From the Australian Electoral Commission?” Annual Meeting of the American Political Science Association, Chicago, IL, August 29-September 1, 2007.
- “Electoral Transitions in Connecticut: Implementation of Public Funding for State Legislative Elections.” Annual Meeting of the American Political Science Association, Chicago, IL, August 29-September 1, 2007. With Timothy Werner.
- “Candidate Gender and Participation in Public Campaign Finance Programs.” Annual Meeting of the Midwest Political Science Association, Chicago IL, April 7-10, 2005. With Timothy Werner.
- “Do Public Funding Programs Enhance Electoral Competition?” 4th Annual State Politics and Policy Conference,” Akron, OH, April 30-May 1, 2004. With Timothy Werner and Amanda Williams.
- “The Last 100 Days.” Annual Meeting of the American Political Science Association, Philadelphia, PA, August 28-31, 2003. With William Howell.
- “Hey, Wait a Minute: The Assumptions Behind the Case for Campaign Finance Reform.” Citizens' Research Foundation Forum on Campaign Finance Reform, Institute for Governmental Studies, University of California Berkeley. August 2000.
- “The Importance of Moving First: Presidential Initiative and Executive Orders.” Annual Meeting of the American Political Science Association, San Francisco, CA, August 28-September 1, 1996.
- “Informational vs. Distributive Theories of Legislative Organization: Committee Membership and

- Defense Policy in the House.” Annual Meeting of the American Political Science Association, Washington, DC, September 2-5, 1993.
- “Department of Defense Contracts, Presidential Elections, and the Political-Business Cycle.” Annual Meeting of the American Political Science Association, Washington, DC, September 2-5, 1993.
- “Problem? What Problem? Congressional Micromanagement of the Department of Defense.” Annual Meeting of the American Political Science Association, Washington DC, August 29 - September 2, 1991.

Talks and Presentations

- “Turnout Effects of Voter ID Laws.” Rice University, March 23, 2018; Wisconsin Alumni Association, October 13, 2017. With Michael DeCrescenzo.
- “Informational and Turnout Effects of Voter ID Laws.” Wisconsin State Elections Commission, December 12, 2017; Dane County Board of Supervisors, October 26, 2017. With Michael DeCrescenzo.
- “Voter Identification and Nonvoting in Wisconsin, Election 2016. American Politics Workshop, University of Wisconsin, Madison, November 24, 2017.
- “Gerrymandering: Is There A Way Out?” Marquette University. October 24, 2017.
- “What Happens in the Districting Room and What Happens in the Courtroom” Geometry of Redistricting Conference, University of Wisconsin-Madison October 12, 2017.
- “How Do You Know? The Epistemology of White House Knowledge.” Clemson University, February 23, 2016.
- Roundtable Discussant, Separation of Powers Conference, School of Public and International Affairs, University of Georgia, February 19-20, 2016.
- Campaign Finance Task Force Meeting, Stanford University, February 4, 2016.
- Discussant, “The Use of Unilateral Powers.” American Political Science Association Annual Meeting, August 28-31, 2014, Washington, DC.
- Presenter, “Roundtable on Money and Politics: What do Scholars Know and What Do We Need to Know?” American Political Science Association Annual Meeting, August 28-September 1, 2013, Chicago, IL.
- Presenter, “Roundtable: Evaluating the Obama Presidency.” Midwest Political Science Association Annual Meeting, April 11-14, 2012, Chicago, IL.
- Panel Participant, “Redistricting in the 2010 Cycle,” Midwest Democracy Network,
- Speaker, “Redistricting and Election Administration,” Dane County League of Women Voters, March 4, 2010.
- Keynote Speaker, “Engaging the Electorate: The Dynamics of Politics and Participation in 2008.” Foreign Fulbright Enrichment Seminar, Chicago, IL, March 2008.
- Participant, Election Visitor Program, Australian Electoral Commission, Canberra, ACT, Australia. November 2007.
- Invited Talk, “Public Funding in State and Local Elections.” Reed College Public Policy Lecture Series. Portland, Oregon, March 19, 2007.
- Fulbright Distinguished Chair Lecture Tour, 2006. Public lectures on election administration and executive power. University of Tasmania, Hobart (TAS); Flinders University and University of South Australia, Adelaide (SA); University of Melbourne, Melbourne (VIC); University of Western Australia, Perth (WA); Griffith University and University of Queensland, Brisbane (QLD); Institute for Public Affairs, Sydney (NSW); The Australian National University, Canberra (ACT).
- Discussant, “Both Ends of the Avenue: Congress and the President Revisited,” American Political Science Association Meeting, September 2-5, 2004, Chicago, IL.
- Presenter, “Researching the Presidency,” Short Course, American Political Science Association Meeting, September 2-5, 2004, Chicago, IL.
- Discussant, Conference on Presidential Rhetoric, Texas A&M University, College Station, TX.

February 2004.

Presenter, "Author Meets Author: New Research on the Presidency," 2004 Southern Political Science Association Meeting, January 8-11, New Orleans, LA.

Chair, "Presidential Secrecy," American Political Science Association Meeting, August 28-31, 2003, Philadelphia, PA.

Discussant, "New Looks at Public Approval of Presidents." Midwest Political Science Association Meeting, April 3-6, 2003, Chicago, IL.

Discussant, "Presidential Use of Strategic Tools." American Political Science Association Meeting, August 28-September 1, 2002, Boston, MA.

Chair and Discussant, "Branching Out: Congress and the President." Midwest Political Science Association Meeting, April 19-22, 2001, Chicago, IL.

Invited witness, Committee on the Judiciary, Subcommittee on Commercial and Administrative Law, U.S. House of Representatives. *Hearing on Executive Order and Presidential Power*, Washington, DC. March 22, 2001.

"The History of the Executive Order," Miller Center for Public Affairs, University of Virginia (with Griffin Bell and William Howell), January 26, 2001.

Presenter and Discussant, Future Voting Technologies Symposium, Madison, WI May 2, 2000.

Moderator, Panel on Electric Utility Reliability. Assembly Staff Leadership Development Seminar, Madison, WI. August 11, 1999.

Chair, Panel on "Legal Aspects of the Presidency: Clinton and Beyond." Midwest Political Science Association Meeting, April 15-17, 1999, Chicago, IL.

Session Moderator, National Performance Review Acquisition Working Summit, Milwaukee, WI. June 1995.

American Politics Seminar, The George Washington University, Washington D.C., April 1995.

Invited speaker, Defense and Arms Control Studies Program, Massachusetts Institute of Technology, Cambridge, MA, March 1994.

Discussant, International Studies Association (Midwest Chapter) Annual Meeting, Chicago IL, October 29-30, 1993.

Seminar on American Politics, Princeton University, January 16-17, 1992.

Conference on Defense Downsizing and Economic Conversion, October 4, 1991, Harvard University.

Conference on Congress and New Foreign and Defense Policy Challenges, The Ohio State University, Columbus OH, September 21-22, 1990, and September 19-21, 1991.

Presenter, "A New Look at Short Term Change in Party Identification," 1990 Meeting of the American Political Science Association, San Francisco, CA.

University and Department Service

Athletic Board, 2014-present.

General Education Requirements Committee (Letters and Science), 1997-1998.

Communications-B Implementation Committee (Letters and Science), 1997-1999

Verbal Assessment Committee (University) 1997-1998.

College of Letters & Science Faculty Appeals Committee (for students dismissed for academic reasons). Committee on Information Technology, Distance Education and Outreach, 1997-98.

Hilldale Faculty-Student Research Grants, Evaluation Committee, 1997, 1998.

Department Computer Committee, 1996-1997; 1997-1998, 2005-2006. Chair, 2013-present.

Faculty Senate, 2000-2001, 2001-2002, 2002-2005. Alternate, 1994-1995; 1996-1999; 2015-2016.

Preliminary Exam Appeals Committee, Department of Political Science, 1994-1995.

Faculty Advisor, Pi Sigma Alpha (Political Science Honors Society), 1993-1994.

Department Honors Advisor, 1991-1993.

Brown-bag Seminar Series on Job Talks (for graduate students), 1992.

Keynote speaker, Undergraduate Honors Symposium, April 13 1991.

Undergraduate Curriculum Committee, Department of Political Science, 1990-1991; 1991-1992; 1993-

1994.

Individual Majors Committee, College of Letters and Sciences, 1990-1991.

Dean Reading Room Committee, Department of Political Science, 1989-1990; 1994-1995.

Teaching

Undergraduate

Introduction to American Government (regular and honors)

The American Presidency

Campaign Finance

Election Law

Classics of American Politics

Presidential Debates

Comparative Electoral Systems

Legislative Process

Theories of Legislative Organization

Senior Honors Thesis Seminar

Graduate

Contemporary Presidency

American National Institutions

Classics of American Politics

Legislative Process